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(FINAL REPORT)

SITES AND LANDFORMS:
A Phase I Archaeological Sampling Survey
at Camp Ripley, Morrison County, Minnesota

THE INSTITUTE FOR MINNESOTA ARCHAEOLOGY
REPORT OF INVESTIGATIONS
NUMBER 22



Submitted to:

United States Army Corps of Engineers
St. Paul District
and the
United States Army National Guard

by

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MANAGEMENT SUMMARY

A Phase I sampling survey of cultural resources at the Camp Ripley Military Reserve in Morrison County, Minnesota was conducted in the fall of 1986 by the Institute for Minnesota Archaeology (IMA). This survey was authorized by the St. Paul District, Corps of Engineers as part of a program to assist the Army National Guard in preserving and managing cultural resources in the reserve.

Major goals were to: (1) evaluate survey conditions and problems, (2) determine appropriate survey methods and techniques, (3) evaluate past and ongoing disturbance, (4) gather site and site-environment information to help guide future surveys and other aspects of cultural resource management; and (5) give time and cost estimates for Phase II studies.

The survey partitioned the reserve into five landform strata based on the criteria of elevation, slope, and drainage. These strata were examined in 40 "sample units" ranging from about 2 to 160 acres in size. The survey included archival and informant research, surface walkovers, shovel testing, and remote sensing. The survey was constrained by training schedules, excessive moisture, and an early winter.

The IMA survey verified 8 find spots and 21 prehistoric and historic sites and gathered data on other sites in the Camp Ripley area. The nature and location of these resources hints that past human behavior was influenced by the natural environment in ways that can be measured from the material record. The developing pattern appears to fit site-environment models from adjacent regions of Minnesota.

Other findings: (1) site-environment relationships changed in historic times so white settlement sites are more evenly distributed across the land; (2) future surveys should continue to use and refine stratified survey zones; (3) the best time for doing field surveys in the reserve is in the spring and fall of the year; (4) military projects continue to have a cumulative adverse effect on cultural resource properties in the reserve; (5) track vehicles in the reserve have fractured lithic raw materials in such a way that it is difficult to differentiate "tank shatter" from prehistoric debitage (stone wastage); (6) some sites are in need of immediate additional work to learn their identity, research potential, and eligibility to the National Register.

The budget for the work detailed in this report was under \$24,000.00. Materials and records resulting from this survey are curated at the IMA lab in Minneapolis.

ACKNOWLEDGMENTS

The Camp Ripley survey was aided by the help of Dr. Katherine Stevenson, David Berwick, and Robert Fay of the St. Paul District, Corps of Engineers, who gave welcome encouragement despite various career changes and illnesses. Stevenson made welcome editorial comments on the first draft of this study.

Major John Ebert and other members of the Camp Ripley Staff offered welcome help and insured that the IMA survey crew had safe access to site areas on the military reserve. Veryl Kalahar, of the Office of the Architect and Engineer at Camp Ripley, graciously shared historical records kept in his custody.

The Offices of County Recorder in Crow Wing, Morrison, and Todd counties provided access to land, mortgage, and probate records in their keeping. The staff at the Dakota County Historical Society assisted the research of Obediah Stout Bennett, an entrepreneur at the Chippewa townsite with an obvious knack for selling undeveloped lots to young women. Dr. Elden Johnson opened information files at the Anthropology Department of the University of Minnesota, Minneapolis.

Local informants shared first-hand knowledge of sites in and around the reserve. For example, Alvie Hines of Brainerd reaffirmed the fact that he had once found arrowheads on his father's farm southeast of Pillager. Clarence Pierzina opened his collections and pointed out locations on the map where he had found things in the Camp area.

Finally, I must thank Kolleen Kralick and Jeffery Tollefson for their tireless efforts to make the Camp Ripley Survey a success. The number of poor weather days they toiled in the field seems to have greatly out-numbered the number of nice days.

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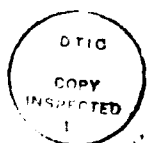


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1. INTRODUCTION

In September, 1986 the St. Paul District, Corps of Engineers (Corps), contracted the Institute for Minnesota Archaeology (IMA) to conduct a Phase I sampling survey of cultural resources at Camp Ripley, Minnesota. Camp Ripley is the General E. A. Walsh National Guard Training Center located near Little Falls in Morrison County in central Minnesota (Fig. 1).

Purpose and Sponsors

The sampling survey was intended to learn more about the nature, extent, and distribution of cultural resources in the Camp and their relationship to various project features.

As specified in the Scope of Work (Appendix A) the IMA was to sample various landform areas to provide information that will guide future surveys and other aspects of cultural resource management. The results of the Phase I sampling survey will assist the Corps--working under an agreement with the Army National Guard--in its ongoing effort to prepare a Historic Preservation Plan (HPP) for Camp Ripley. The HPP will summarize the known cultural resources of the Camp and provide a strategy for the management of these resources. Provisions will be made in the HPP for other sites that have not yet been discovered or identified.

Other specific goals of the survey were to: (1) evaluate survey conditions, (2) determine appropriate survey methods and techniques, (3) identify survey problems, (4) evaluate past and ongoing disturbance, and (5) gather significant information on probable site types, distributions, sizes, and other characteristics. The IMA was also asked to conduct intuitive sampling in areas of high potential or in areas endangered by future camp activities. Finally, the contract called for the survey of a project area related to a proposed M-16 Record Firing Range. This request was dropped when field reconnaissance suggested the magnitude of this task and the low probability that sites would be located by shovel testing at 15 meter intervals.

The sampling survey was to incorporate the results of three previous cultural resource projects conducted at the Camp, including: (1) a 1985 literature search and records review of the camp area that provided information on 64 cultural resource locations (Fay 1985); (2) a 1986 field check of 24 prehistoric and historic sites selected from this list of locations (Birk 1986); and (3) a 1986 geomorphic study of

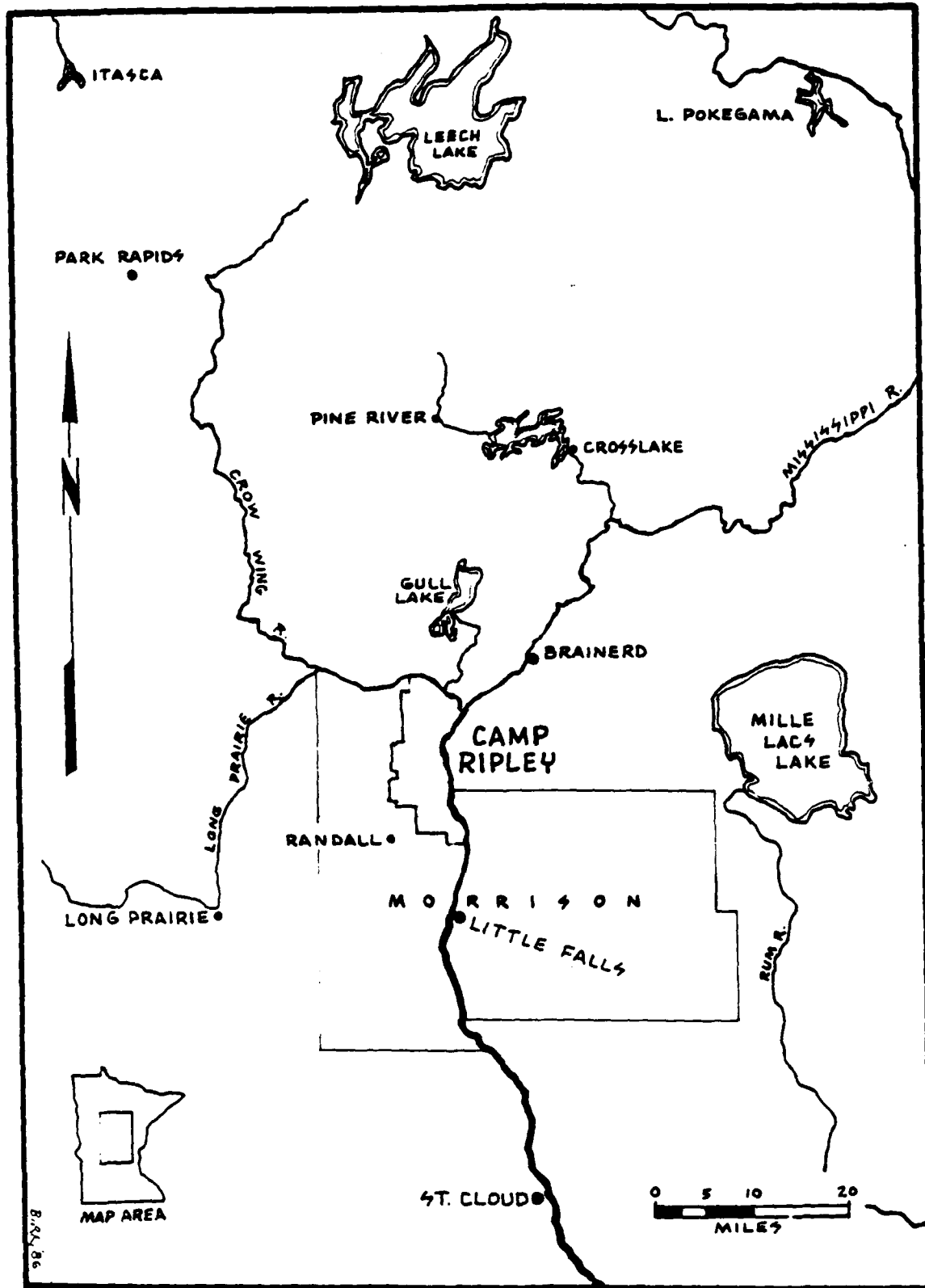


Figure 1. The Morrison County Region. A map showing the location of Camp Ripley, the General E. A. Walsh National Guard Training Center, in central Minnesota.

the Camp area undertaken by the U. S. Army Waterways Experiment Station. Due to unforeseen circumstances, the geomorphic study was unavailable to IMA archaeologists during the Phase I sampling survey and the writing of this report.

The IMA's field investigations partially fulfill the legislative mandate of the Army National Guard to locate, inventory, protect, and preserve cultural resources in project areas under its control. The work complies with specific requirements set forth in the National Historic Preservation Act of 1966 (Public Law [PL] 89-663), as amended; the National Environmental Policy Act of 1969 (PL 91-190); the Archeological and Historical Preservation Act of 1974 (PL 93-291); the Advisory Council on Historic Preservation "Regulations for the Protection of Historic and Cultural Properties" (36 CFR, Part 800); and the applicable Army regulations (Army Regulation 420-40).

The Phase I survey contract was sent out for bid quotations on August 14, 1986 and awarded to the IMA on September 3, 1986 as Contract No. DACA37-86-M-1573.

Components and Goals of the Phase I Report

This report consists of five chapters preceded by a management summary and followed by an appendix that includes the Scope of Work, personnel resumes, sample unit and artifact lists, and state site forms. Written materials used in the preparation of this report are listed in the "References Cited" section.

Chapter 1 provides general background information on the survey and survey participants, and a summary of earlier investigations. Chapter 2 gives an overview of the natural environment and the distribution of sites in the Camp Ripley area. Chapter 3 examines survey goals, methods, and problems. Chapter 4 discusses the results of the survey and presents information on each of the sites examined. Chapter 5 draws conclusions from the survey data, evaluates the effectiveness of the survey, and makes recommendations for future work.

The Project Area

Camp Ripley is located in the center of the state of Minnesota in the panhandle of Morrison County (Fig. 1). The north and east margins of the Camp are marked by the Crow Wing and Mississippi Rivers. The south and west margins are

a rural mixture of forest, marshes, lakes, and farmland. The reserve boundaries in the latter areas are partly defined by County Highway 1 and State Highway 115.

Camp Ripley is about 18 miles long north to south and from two to seven miles wide east to west. The Camp includes an area of about 53,000 acres in parts of six adjacent townships: Clough, Darling, Green Prairie, Motley, Rail Prairie, and Rosing (Fay 1985,1:2).

Camp Ripley is about 110 miles northwest of Minneapolis-St. Paul and about 120 miles west-southwest of Duluth. Little Falls, the county seat and largest community in Morrison County, is eight miles south of the reserve. Brainerd, the county seat and largest community in Crow Wing County lies nine miles to the northeast. Little Falls and Brainerd are both situated on the Mississippi River. Other small towns in the vicinity of the Camp include Fort Ripley, Randall, Cushing, and Pillager.

The Camp Ripley reserve is owned by the State of Minnesota. Beyond its use as an Army National Guard training facility, the Camp also serves as a State Game Refuge. In addition, part of the reserve, on the southwest side of the juncture of the Crow Wing and Mississippi Rivers, is within the statute limits of Crow Wing State Park (Lothson & Clouse 1985:42 & Fig. 11). The Mississippi Headwaters Board, a joint-powers consortium of central and northern Minnesota counties, maintains an interest in the planning and protection for the Mississippi corridor and adjacent lands in Morrison county (MHB 1982).

The heart of Camp Ripley and the part most heavily developed is the cantonment area located in the southeast corner of the reserve. The cantonment covers an area of about 1,955 acres and is laid out in a rectangular north-south grid (Fay 1985,1:2). Other parts of the reserve are developed or used as roads, training areas, landing zones, firing ranges, gravel mines, and picnic grounds.

Previous Investigations

Until recent National Guard efforts to develop an HPP, Camp Ripley's cultural resources were largely neglected. The infrequent resource surveys conducted within the reserve were limited, unsystematic, and generally unproductive. Few earlier surveys resulted in material collections or drew conclusions regarding the nature or cultural affiliation of sites. The abbreviated summary of previous investigations given here is adapted from Birk (1986:4-7).

The first prehistorians in this region were concerned with mapping and digging burial mounds. Several investigators were active in the Morrison County region, but their surveys were mostly confined to areas outside of the present military reserve where travel was facilitated by roads and rail lines.

In the late 1800's, archaeologists Theodore Lewis and Jacob Brower mapped mounds on the level sandy plains that flank the Crow Wing and Mississippi Rivers above Little Falls, but reported no mounds within the reserve. Brower, the first archaeologist to explore within the area of the present Camp, was actually stationed at Fort Ripley as a cavalryman in 1863. When he revisited the old fort in 1901, Brower discovered a scatter of prehistoric materials along the ferry road to the north. He also felt confident in identifying many of the old buildings sites and utensils found at the fort site.

When the land within the present reserve was opened to white settlement, many settlers must have found evidence of earlier human presence on their property. Unfortunately, most of this information was never recorded and is now lost. Some notable exceptions are preserved in the writings of local historians Nathan Richardson and Valentine Kasperek. Kasperek, for example, noted several alleged "Pagan" Indian burials on the Joseph Prosser farm on the southwest side of the juncture of the Crow Wing and Mississippi Rivers (Site #2). In 1945, University of Minnesota archaeologist Lloyd Wilford visited the farm and observed that many of these features had already been obliterated or destroyed. More recently, historian Pete Humphrey explored this area and found what he thought were "cellars or holes" similar to others noted at the abandoned townsite of Old Crow Wing.

Recent interviews with persons familiar with the Camp have provided some rare first-hand accounts of finding prehistoric materials within the military reservation. Alvin ("Alvie") Hines, who grew up southeast of Pillager in an area later acquired by Camp Ripley, told of finding arrowheads on the family farm (Site #1) in the late 1930's (Alvin Hines, personal communication). Clarence Pierzina, a retired DNR and Camp employee who spent many years of his life working at the reserve, remembered finding arrowheads at several locations in and around the Camp and showed the author part of his collection (Clarence Pierzina, personal communication). Bernard Fashingbauer, another former DNR employee, also collected arrowheads in the Camp and on the Pinnacle Gun Club land between Rice and Skunk lakes east of Little Falls (Bernard Fashingbauer, personal communication).

Joseph Minshaw, a former construction foreman at Camp Ripley, told of finding prehistoric hearths near the south end of Hole-in-the-Day Marsh (Site #5) as well as the only Indian mounds (Site #3) known to exist within the boundaries of the reserve (Joseph Minshaw, personal communication).

The most widely documented archaeological site on the military reserve is that of old Fort Ripley. A history of the fort published by Robert Orr Baker in 1971 suggests that a steady stream of curious visitors have been drawn to this location to scavenge for souvenirs. According to Baker, "to every amateur archeologist, every depression in the neighborhood [of the old fort] suggests a [place to] dig" (Baker 1971:147). He gives no indication of how extensive the unauthorized digging has been.

Beyond Baker's landmark work, the most recent and useful studies of cultural resources at Camp Ripley are the documentary review reported by Old Northwest Research (Fay 1985) and the survey of selected sites reported by the Institute for Minnesota Archaeology (Birk 1986).

The Phase I Survey: Schedules and Collections

The Phase I sampling survey was performed under contract with the Corps of Engineers (Corps). Douglas Birk, a Senior Research Archaeologist with the Institute for Minnesota Archaeology (IMA), served as Principal Investigator. In addition to directing and participating in the field survey, Birk conducted personal interviews, continued archival research, and prepared this report of investigations.

Surveyors for the project were IMA Field Assistants Jeff Tollerson and Kelleen Kralick (Appendix B). Both Tollerson and Kralick were responsible for executing field surveys, recording site data, producing site maps, and identifying artifacts. They bore the brunt of the inclement fall weather, dug most of the shovel tests, and catalogued the artifacts. Kralick spent considerable time on the computer entering the daily log and various information that was useful in assembling this report.

The Corps' requirements and guidelines for the survey appear as Appendix A in the back of this report. The survey approach was finalized in meetings with Corps Archaeologist Dr. Katherine Stevenson on September 8 and September 15, 1986. A letter detailing the contract agreement was sent to Stevenson on September 17 (Appendix C). On September 21 Birk applied for an extension to the IMA's "license to

conduct archaeological investigations on State lands," a permit required by Minnesota Statute 138.36.

The field survey began on September 22 when Birk checked with Security and Operations personnel at Camp Ripley and led the survey team on an "orientation tour" of the military reserve. Identification passes were later issued by Camp Security which allowed IMA surveyors to enter the reserve without escort. A total of 80.7 person days were spent on the field survey. The author reported the results of the survey to the Office of Military Affairs on November 15, 1986.

Archival and informant research was done in ten person days over a six-week period beginning on September 30, 1986. Maintaining the daily log required an average of about one hour a day. Sketch maps were redrawn to scale as the need demanded. In the last weeks in the field, the crew spent nine person days processing artifacts and entering site and survey information into the computer. Much of this work was done during periods of inclement weather.

Notes and artifacts gathered during the Phase I survey will be housed at the IMA lab in Minneapolis. Site forms for prehistoric sites checked during the survey are on file with the State Archaeologist's Office at Hamline University. Copies of these forms appear in Appendix D of this report.

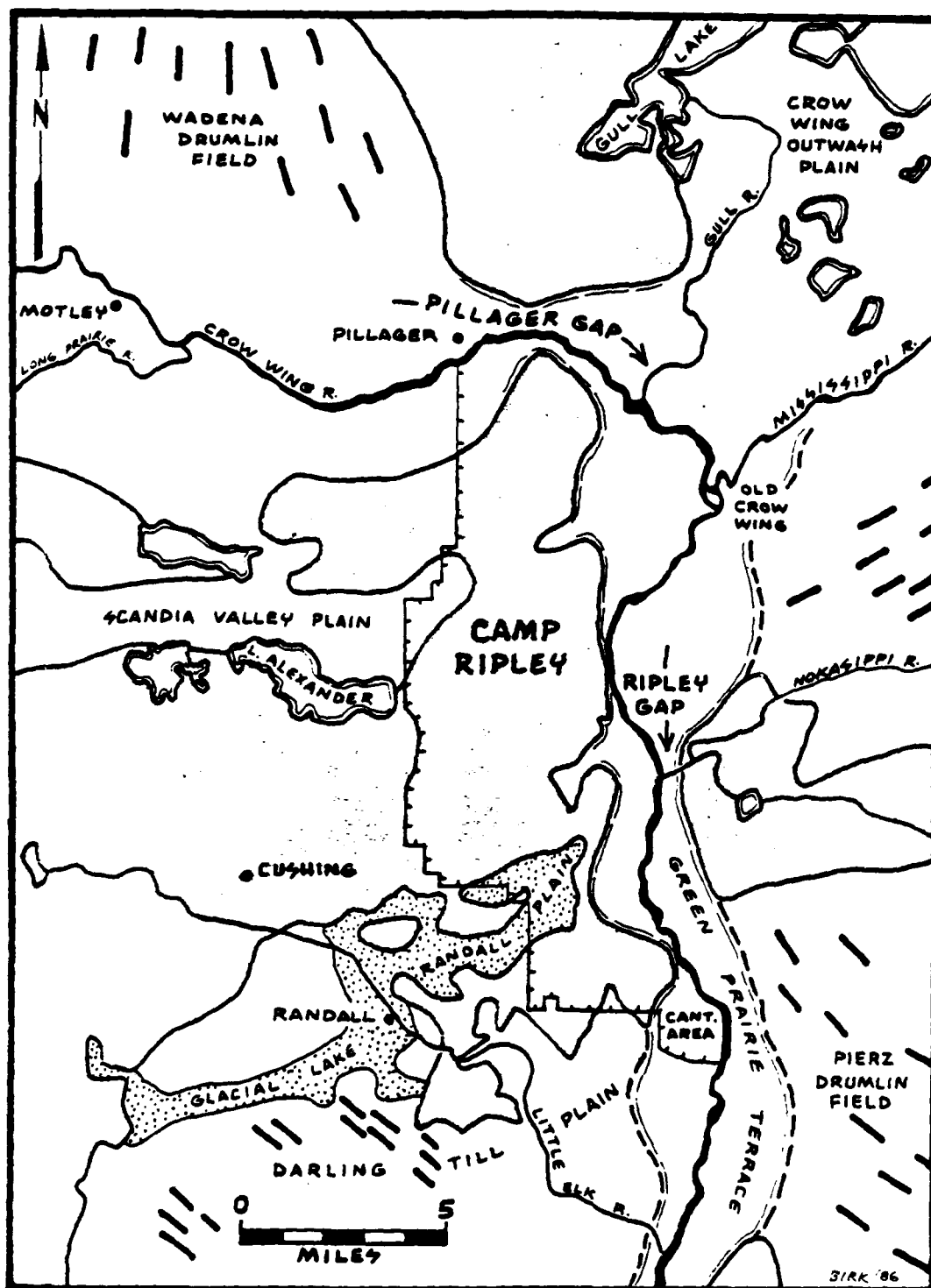


Figure 2. Selected Natural Features in the Camp Ripley Area (adapted from Schneider 1961). The land surface within the Camp is formed by end moraines (shown in gray), drainageway gaps and terraces, a glacial lake plain (stippled), and areas of till and outwash plain. These uneven surface features have long affected how human groups have settled and used this region, and were used to stratify the environment to guide the present sampling survey.

2. THE NATURAL ENVIRONMENT

The basic surface features of the Camp Ripley area were shaped by a series of glacial ice movements that occurred during the Wisconsin stage of glaciation some 60,000 to 12,000 years ago. During the subsequent Holocene Period the combined effects of climate, erosion, and human activity have modified the landscape into its present form. This chapter describes the local environment and suggests some ways in which it has affected man-land relationships and the distribution of cultural resources.

Geology

Bedrock exposures in the Camp Ripley area are rare, because of the huge volume of overlying glacial drift. Outcrops of schist appear at the town of Randall and schist and slate exposures are present along the Little Elk River south of the reserve. The schists are fine-grained, variably metamorphosed, Middle Precambrian rocks with a slaty cleavage. The schist exposures near Randall mark the southwest end of the Cuyuna iron-bearing rock formation which underlies the military reserve (Marsden 1972:226, 236; Ojakangas & Matach 1984:213).

The slate unit on the Little Elk is marbled with veins of white quartz. Evidence that this quartz was used in prehistoric times for making stone tools has been found in IMA excavations at 21M020, a multi-component site at the south of the Little Elk. White quartz debitage is common on prehistoric sites throughout much of central Minnesota. In the Little Falls region, the natural occurrence of fractured white quartz in glacial outwash was a source of controversy among early Minnesota scholars who thought it might be attributed to "Glacial Man" (Brower 1902). One of the largest collections of prehistoric stone tools from the area of the reserve--the Clarence Pierzina Collection--is dominated by white quartz artifacts.

Physiography, Soils, and Sites

The Camp Ripley area is an excellent laboratory for studying the glacial history of central Minnesota. A succession of ice movements during the Wisconsin period of glaciation converged in this region to form a complex series of moraines and till plains. Numerous glacial meltwater features such as eskers, kames, ice-block depressions, lake-and-valley chains, lake and outwash plains, and spillways

are also present. The location, origin, and nature of these features are the focus of a Minnesota Geological Survey report published by Allen F. Schneider in 1961. Readers of the present study will benefit by referring to Plate 1 of Schneider's report (a folded color map of the Randall-Camp Ripley Region that shows many of the topographic features discussed below). The direction and sequence of the more recent Pleistocene ice movements in this region is suggested by the axial bearings of drumlins (Fig. 2), the order of overlapping moraine deposits, and striations on the bedrock exposures at Randall and the mouth of the Little Elk (Schneider 1961:28-30).

The Western St. Croix Moraine that dominates the military reserve is part of a larger formation extending from near St. Cloud for about 100 miles north to Leach Lake. This rugged moraine averages about six miles in width and generally presents a sharper face on its western or terminal edge (Wright 1972:570). The arcuate range of morainic hills in the Camp was formed by the Brainerd and Pierz sublobes of ice that entered this area from the northeast and southeast. These hills are bordered by the Mississippi corridor on the east, the Pillager Gap on the north, and glacial till plain and lake features on the south. In some areas, the moraine is 200-300 feet high, giving magnificent views of the adjacent landscape. The moraine is a mixture of unsorted tills made up of clay, sand, gravel, cobbles, and boulders.

There are few known prehistoric sites in the hill country at Camp Ripley. Even in modern times parts of the moraine have proved a formidable challenge to settlement and agriculture. The belief that former pine lands were of no value for farming (Anonymous 1894:12) did little to encourage post-logging era settlement. Even in the 1950's geologists complained of the relative inaccessibility of morainic areas in the military reserve, because of the rugged terrain, lack of roads, and military training operations (Schneider 1961:1).

Bordering the moraine at the north end of the Camp, in the areas around Pillager and the mouth of the Crow Wing River, are plains associated with the Pillager Gap drainageway (Schneider 1961:105). Irregular marshes covering much of the plains mark extinct meltwater channels. Although the soils are sandy and fast-draining, both plains were widely settled and farmed prior to the expansion of the military reserve in the 1960's. The potential for prehistoric sites on these drainageway plains could complement the numerous prehistoric mound and habitation areas known on the plains north of the Crow Wing River.

Old Fort Ripley and the present Camp cantonment were built on the Green Prairie outwash terrace that accommodates the Mississippi River in the southeast corner of the reserve. This sandy terrace is 2-1/2 to 3 miles wide and has an average height of 25 feet above the river. Its surface is cut by extinct braided stream channels that commonly flood during periods of extreme moisture. Southwest of the cantonment the terrace grades with little apparent surface change into the East Darling sandy outwash plain. Northwest of the cantonment and west of the old fort the moraine rises sharply to a height of 140 feet above the terrace. The terrace area surrounding the old fort, where the Mississippi corridor is confined by the Nokasippi and St. Croix moraine formations, is known as the Fort Ripley Gap. The soils on the gap terrace, around the cantonment, and on the adjacent till and lake plains are a mixture of water-sorted outwash, lake sediments, and more recent alluvium (Schneider 1961:87-90 & Plate 1).

The Fort Ripley Gap-Green Prairie locale contains numerous cultural resources that reflect a long and varied use of the local landscape. The concentration of sites also reflects the former importance of the Mississippi River as a travel route. Among the known sites in this locale---within the military reserve---are prehistoric mounds and habitations; Zebulon Pike's "Pine Camp"; old Fort Ripley; and homesteads, ferries, post offices, farms, and cemeteries. An Indian portage once extended from near the Camp Ripley Mounds (21M022) on the Mississippi westward to the Scandia Valley where it intersected with Lake Alexander. This portage was later adopted and modified to become a government trail that connected old Fort Ripley with the lake (Miller 1981:38). On the east side of the Mississippi in this locale are an early oxcart trail and a wide number of historic and prehistoric sites at Belle Prairie, Prairie Perce, Big Bend, Pipe Island, and the mouth of the Nokasippi. 21M020 and attendant prehistoric and historic sites at the mouth of the Little Elk River are on the Green Prairie terrace four miles south of the cantonment area.

Vegetation

Post-glacial vegetation changes in the Camp Ripley area have been in response to climatic shifts and the activities of man. The most dramatic shift may have been during the thermal maximum, a warming-drying period beginning about 7000 years ago that caused lake levels to drop and small streams to stagnate or disappear. During this period, forest and grass fires went largely unchecked and the prairie-forest border migrated as many as 75 miles northeast

of its present position. When the warming trend reversed about 3,500 years ago, the prairie and oak savanna reverted to the southwest to where it was eventually recorded during the original land surveys of the last century.

Just before the era of logging and settlement began in the 1800's, most of the Camp area was covered with forests of pine (red, white and jack), and northern hardwoods (birch, aspen, oak, maple, elm and basswood) (Fay 1985,1:11). Fire probably played an important role in shaping the local vegetation, particularly in well-drained level areas such as the Green Prairie terrace.

Intensive logging, beginning in the 1840's, so dramatically altered the forest cover in the Camp Ripley area that it is now difficult to imagine just how dense the pine groves might have been before cutting began. Loggers are said to have removed an astonishing 22 million feet of logs from Section 20, T132N-R30W, on the west side of Camp Ripley, in the late 1890's (Miller 1981:38). In the adjacent Section 17 some old-timers can recall that as young boys they could literally walk across the entire section on pine slashings, never having to touch the ground! (Carroll Nelson and Sigfred Nelson, personal communications)

Throughout much of the Holocene, grassland openings were scattered along the Crow Wing and Long Prairie Rivers, and along the Mississippi corridor between Little Falls and Crow Wing. These prairie inclusions often attracted large game animals and served as magnets to early hunters and settlers. Many are still known by their early names. Green Prairie, the namesake of the Green Prairie Post Office and location of the present Camp cantonment, was said to be three miles long and nearly a mile wide at the time of settlement.

Fauna

Morrison County is on the southern edge of Minnesota's pine-hardwood forest near the eastern border of the prairie grasslands. Early fur traders recognized this transitional forest zone as one of the best hunting and trapping grounds in the Great Lakes country. In this region, bison, elk, and bear were hunted on both banks of the Mississippi River into the 1800's. The habitat was also favorable for whitetail deer, a species that is today very common in the military reserve.

The Camp Ripley area is home to many smaller mammals including wolf, fox, beaver, mink, muskrat, woodchuck, skunk, porcupine, squirrel, and rabbit. Migratory waterfowl

are common in the warmer months with the greatest numbers in the spring and fall. Most species of Minnesota game-fish, including muskellunge, bass, and walleye, are found in the Mississippi River. Lake fishing is also popular in this region, particularly at Fish-Trap Lake and Lake Alexander just west of the Camp (Fig. 2).

The abundance of food and water resources in the Morrison County area was a major attraction for early Indian and European populations. After 1736, this region became part of the infamous "war road" or contested zone that separated the Dakota and Ojibway tribes. Attempts to maintain exclusive hunting rights in this game-rich war zone brought these groups into direct competition. The range of game resources and inter-tribal hostilities is documented in Ojibway oral history (Warren 1957) and the writings of early explorers like Zebulon Pike (Jackson 1966).

Climate

Morrison County enjoys a continental climate with average annual temperatures in the low 40-degrees Fahrenheit range, but with wide seasonal extremes between summer and winter. There are about 130 frost-free days. The average annual precipitation is about 27 inches, with almost half of the moisture occurring between June and August. Annual snowfall ranges from 40 to 50 inches, with snow staying on the ground for 100 to 140 days. The prevailing drought cycle, as seen in the droughts of the late 1880's-early 1890's, the 1930's, and 1976, is for recurring dry periods every 40 years (Cleland 1966:9; Borchert & Yaeger 1968:13-19).

Seasonal climatic changes in central Minnesota affect the mobility, and shelter and dietary needs, of resident human groups. The behavior of most plants and animals also changes on a seasonal basis, which affects how and when these resources can be used. Among hunter-gatherer populations, the reliance on specific critical food resources (such as wild rice, maple sugar, or spawning fish) can become so strong that the configuration of those groups might actually parallel that of a given plant or animal population on either a continuing or seasonal basis. Such adaptive behavior will theoretically be reflected in the size, location, content, and permanency of archaeological sites resulting from such behavior (Birk 1979:30-32).

3. GOALS AND METHODS

This chapter reviews the goals, strategies, and methods of the IMA's Phase I sampling survey at Camp Ripley. Included is a discussion of field conditions, lab procedures, and general survey results.

Corps' Research Goals

The Phase I sampling survey is part of a Corps-assisted Army National Guard project that will help in the future preparation of a Historic Preservation Plan (HPP) for Camp Ripley. The HPP will provide for the management of known and suspected cultural resources within the military reserve.

A first step in the management process was the literature search and records review done by Robert Fay of Old Northwest Research. This study: (1) inventoried and evaluated cultural resources within the Camp; (2) assessed the possible impacts of proposed mobilization developments on those resources; and (3) developed a phased program for future cultural resource studies (Fay 1985,1:1).

Fay's study recommended that all recorded prehistoric and historic sites at Camp Ripley be evaluated to determine exact site locations, conditions, and potentials for nomination to the National Register of Historic Places (Fay 1985,1:53).

Corps archaeologists reviewed Fay's recommendations and, in consultation with the Camp Ripley staff and the Minnesota State Historic Preservation Office (MnSHPO), selected 24 of the sites (38 percent) to be field-checked. The Phase I field-check survey, conducted by the author in May, 1986, documented the general nature, extent, and condition of each of the 24 sites. The survey also furnished data for Phase II testing of sites where such work was determined to be appropriate (Birk 1986).

The present sampling survey was intended to learn more about the nature, extent, and distribution of cultural resources in the Camp and their relationship to various project features. This Phase I study was designed to provide information about cultural resources that would guide future surveys and other aspects of cultural resource management within the military reserve.

In addition, the survey was to: (1) evaluate survey conditions; (2) determine appropriate survey methods and

techniques; (3) identify survey problems; (4) evaluate past and ongoing disturbance; and (5) gather data on probable site types, distributions, sizes, and other characteristics. The IMA was also asked to provide recommendations and time and cost estimates for additional testing of selected sites.

To meet these goals the contract required that the reserve grounds be partitioned on the basis of elevation, slope, and drainage into various physiographic or geomorphic zones. Each landform stratum was then to be sampled in the field to learn more about the presence and potential for cultural resources. It was determined in advance that statistically significant resource samples would be unattainable because of funding limitations, the large size of the study area, and difficult survey conditions.

The IMA was encouraged to conduct intuitive surveys in areas of high potential or in areas endangered by future camp activities. Finally, the request to survey a proposed M-16 Record Firing Range was dropped when a field check suggested the magnitude of this task and the low probability that sites would be found in the area by shovel testing at 15 meter intervals.

IMA Research Goals

The Institute for Minnesota Archaeology (IMA) is interested in the cultural resources at Camp Ripley because of their relevance to ongoing IMA projects. IMA research interests in central Minnesota include the discovery, assessment, and protection of prehistoric and historic sites; the study of early environments; the effect of natural conditions on settlement and land use; and the elucidation of cultural histories, adaptations, developments, and exchanges. An increased knowledge of sites and site-land relationships in the Camp will extend our understanding and appreciation of the archaeological record in adjacent areas. Specific IMA projects include:

(A) The 21M020 Project. The IMA and the Minnesota Parks Foundation share joint stewardship of a number of historic and prehistoric sites at the mouth of the Little Elk River, four miles south of the Camp cantonment. Over the past four years the IMA has explored 21M020, a multi-component site which includes the remains of a mid-1700's French colonial fort. This work has broadened our knowledge of the temporal, social, economic, and ecological parameters of early European-Indian interaction in the Mississippi Headwaters Region.

(B) The Pike's Fort Project. In 1984 and 1985 the IMA sponsored excavations at the inundated site of Zebulon Pike's 1805-06 wintering quarters south of Little Falls. This work produced significant new information that will be used to re-assess Pike's travels and observations. The Pike's Fort data (including journals and maps produced by Pike's expedition) will help detail the nature of man-land-animal relationships in central Minnesota's prairie-forest transition zone prior to the time of white settlement.

(C) The Beaulieu House Project. Fur trader Clement Beaulieu (pronounced "bolio") was a key player in the development of Crow Wing, a townsite at the mouth of the Crow Wing River. The house he built at Crow Wing in about 1849 was later moved to a new location near the entrance of Camp Ripley. The IMA is working with the Minnesota Department of Natural Resources and local citizens to get the house returned to its original site in what is now Crow Wing State Park. This effort involves considerable IMA research into the development of old townsites at the junction of the Crow Wing and Mississippi Rivers (Birk 1986:20, Fig. 3).

(D) Prehistoric Sites Research. The IMA's interest in central Minnesota prehistory includes the study of the nature and distribution of sites in relation to various landforms, vegetal regimes, seasonal food resources, water resources, and portages. The IMA strives to develop and test hypotheses that broaden our use and understanding of the archaeological record. The IMA supports efforts that allow for enlightened decisions in the future management and protection of our cultural resources.

Research Strategies

Archaeology involves the study of material culture remains and the distribution of those remains through time and space. Archaeologists assume that human behavior is patterned and that past behavior is reflected in patterns seen in the archaeological record. Archaeologists are most successful in finding sites and site-site relationships that result from recurring behavior where repeated activities at similar locations have produced large quantities of materials (artifacts). Conversely, small, sparse sites that are capriciously scattered over the countryside are more difficult to find and identify. Thus the size, density, and location of prehistoric sites have a lot to do with the rate at which they will be discovered.

Human behavior can be seen as a response (adaptation) to cultural and natural conditions that change through time and

vary from place to place. Over the past 10,000 years there have been broad shifts in the physical environment of central Minnesota. The many human groups that have visited or lived in the Camp Ripley area encountered an uneven distribution of natural conditions that prompted a range of responses in the way various sub-areas were settled or used. An unintended record of this settlement and land use was left in the form of an archaeological record.

Data sought during the survey relates to the distribution of prehistoric cultural resources (sites) in relation to selected landform areas (strata). The survey was to examine a portion of each landform stratum to find a sample of cultural resources. These samples could then be used to project the possible range and number of resources that make up the universe of prehistoric sites within the reserve. The study is a form of "prehistoric geography" that proposes to use a prior knowledge of sites to predict the location of other sites within a region or stratum (Mueller 1974; Redman 1974; Melvin 1980). Using selected physical criteria, areas can then be assessed for the prospect of making further archaeological discoveries. The purpose of the present sampling survey, as outlined in the Corps' Scope of Work (Appendix A), is to provide information for the future management and study of cultural resources and not necessarily to construct predictive models.

Systematic sampling surveys are a recent innovation in Minnesota archaeology that gained favor and maturity in the 1970's. The coeval development of shovel testing (interval sampling) enhanced the archaeologist's ability to conduct broad scale surveys in forested areas. Sampling surveys are an efficient and cost effective means of reducing biases in gathering archaeological data.

The problem of bias cannot be ignored. As late as 1975, over 90 percent of the state's recorded sites were prehistoric mounds. Because--through time--an appreciable number of Minnesota's prehistoric Indian groups did not bury their dead in mounds, the state's archaeological data base was culturally and temporally biased. The data were also geographically biased, because most of the state's prehistoric mounds were built near water (Lothson 1967:35). Such information is of immense value in discussing Woodland burial practices or in designing programs to manage the archaeological record of human remains. On the other hand, it tells little about how the land was used (especially in pre-Woodland times) and is inadequate for guiding the management of non-burial sites. The survey at Camp Ripley was intended to reduce some of the traditional sources of

bias that surround the gathering of archaeological information.

Planning for the Phase I sampling survey was to incorporate existing cultural resource data (Fay 1985; Birk 1986) with the results of a regional geomorphic study done by the U. S. Army Waterways Experiment Station. When unforeseen events caused the geomorphic study to be delayed, Corps archaeologist Dr. Kathleen Stevenson requested that the IMA suggest an appropriate means of partitioning landform strata within the reserve. Using USGS quadrangles and geomorphic information from geologists Allan F. Schneider (1961) and H. E. Wright, Jr. (1972), the author defined general landform "types" within the reserve and their probable source of origin (Table 1).

Table 1. Selected Camp Ripley Landform Areas Listed by Source of Origin.

Ice Formations

End Moraine (Steep to Gentle Slopes)
End Moraine Basins (Near Level)
End Moraine Marshy
Ground Moraine
Eskers

Water Formations

Glacial Lake Plain
Mixed Glacial Lake Plain & Outwash Terrace
Outwash Terrace (Near Level)
Outwash Terrace Marshy
Drainageway Terrace

Recent (Post-Glacial) Formations

Alluvial River Deposits
Colluvial Slope Deposits

Because prehistoric peoples were undoubtedly less influenced by the natural processes that initially shaped the terrain than they were by the terrain itself, Table 1 was seen as only a first step of environmental stratification. The second step was to categorize the various sub-areas on the basis of elevation, slope, and drainage. This resulted in the naming of five separate landform strata (Table 2).

Using this information, Stevenson delineated the strata on a set of USGS quadrangles (Appendix F). These delineations were reviewed by Birk and, with only slight modification, were used to estimate the acreage of each stratum. The

acreage was determined by estimating the number of quarter section tracts included within each stratum. For example, those areas of the reserve said to have "rugged" terrain comprised about 82 quarter sections or 13,120 acres.

Table 2. Camp Ripley Landform Areas Stratified by Slope and Drainage.

Stratum 1: Rugged

End Moraine, Steep Slopes
Eskers

Stratum 2: Moderate

End Moraine, Moderate Slopes

Stratum 3: Gentle to Rolling

End Moraine, Gentle Slopes
Ground Moraine
Mixed Glacial Lake Plain and Outwash Terrace
Colluvial Slope Deposits

Stratum 4: Level

Outwash Terrace, Near Level
End Moraine Basin
Glacial Lake Plain
Alluvial River Deposits
Drainageway Terraces

Stratum 5: Marshy

Outwash Terrace, Marshy
End Moraine Marshy
Mixed Glacial Lake Plain and Outwash Terrace

The acreage data were used to guide the survey so that each stratum (disregarding Stratum 5, which was not considered) was investigated with a somewhat similar intensity. The estimated acreage of each stratum, and the percentage of each stratum that was ultimately surveyed, are shown in Table 3. Overall, the survey covered about 1532 acres or about three percent of the total estimated survey area.

Survey Methods

Prior to entering the field, the author met with Stevenson and Corps Archaeologist David Berwick to discuss possible methods to be used in the survey. It was already recognized that the vastness of the survey universe and other problems would preclude the possibility of obtaining statistically

Table 3. Estimated Acreage of Strata and Areas Surveyed.

| Landform Stratum | Total Acreage | % of Total | Acres Surveyed | % of Stratum Surveyed |
|---------------------|------------------|---------------|-------------------|--------------------------|
| 1-Rugged | 13120 | 27% | 279 | 2% |
| 2-Moderate | 5760 | 12 | 97 | 2 |
| 3-Gent/Roll | 12160 | 25 | 604 | 5 |
| 4-Level | 11840 | 24 | 552 | 5 |
| 5-Marshy | 5760 | 12 | --- | --- |
| TOTALS: | 48640 | 100% | 1532 | 3% |

significant samples (Appendix A). There was also concern for field conditions at the reserve, including the accessibility and integrity of the landscape. Large areas of the reserve are occasionally or permanently closed for training purposes. Much of the countryside within the reserve is altered by farming, road-building, military, and logging activities. Many areas are littered with military hardware, gouged by latrines and foxholes, and scarred by tank tracks, gravel pits, and road cuts (Fay 1985,1:39; Birk 1986:21). Other densely vegetated parts of the reserve require the use of time-consuming subsurface testing to survey. In consideration of these factors it was decided that any attempt to systematically survey the camp using probability sampling (that is, where samples are drawn to conform to rigorous mathematical theory) would likely be difficult and frustrating.

After much discussion, it was agreed that the Phase I survey should maximize the use of pedestrian reconnaissance to look for sites in areas like fields, fire breaks, road cuts, eroded surfaces, rodent burrows, and tank tracks. The rationale was to increase the survey coverage (so that more parcels could be explored in the short allotted time) while monitoring the nature and effect of ground disturbance. Since the northern half of the reserve is more densely forested, it was observed that surface surveys would be most appropriate and informative in the southern half. Shovel testing was to be reserved for surveying areas with heavy vegetation and to define the limits of subsurface prehistoric site deposits. Shovel test surveys were to generally proceed by transects with test and transect intervals to be maintained at 15 meters. The soils from all

Table 4. The Number and Distribution of Shovel Tests Dug During the Camp Ripley Sampling Survey. This table reflects only the sites and find spots found by shovel testing and not the number of cultural resources known in each sample unit.

| Sample Unit | Landform Stratum | No. of Shovel Tests | No. of Positive Tests | Sites Found? | Find Spots Found? | Comments |
|-------------|------------------|---------------------|-----------------------|--------------|-------------------|---|
| 1 | 3 | 1 | 0 | No | No | Control test to examine soil stratigraphy. |
| 2 | 4 | 1 | 0 | No | No | Control test to examine soil stratigraphy. |
| 3 | 3-4 | 1 | 0 | No | No | Control test to examine soil stratigraphy. |
| 4 | 2-4 | 1 | 0 | No | No | Control test to examine soil stratigraphy. |
| 5 | 2 | 1 | 0 | No | No | Control test to examine soil stratigraphy. |
| 6 | 2-3 | 1 | 0 | No | No | Control test to examine soil stratigraphy. |
| 7 | 4 | 1 | 0 | No | No | Control test to examine soil stratigraphy. |
| 8 | 1 | 122 | 21 | #78, #79 | #3 | None. |
| 9 | 3 | 1 | 0 | No | No | Control test to examine soil stratigraphy. |
| 10 | 2-3 | 2 | 0 | No | No | Control test to examine soil stratigraphy. |
| 11 | 1-2-3-4 | 1 | 0 | No | No | Control test to examine soil stratigraphy. |
| 12 | 3 | 2 | 1 | No | (#4) | Area of positive test (ST#A) was disturbed. |
| 13 | 1 | 98 | 1 | No | #5 | ST47, chert flake found at depth of 5-15cm. |
| 14 | 3-4 | 1 | 0 | No | No | Control test to examine soil stratigraphy. |
| 15 | 4 | 1 | 0 | No | No | Control test to examine soil stratigraphy. |
| 16 | 4 | 88 | 17 | #75, #80 | No | None. |
| 17 | 4 | 1 | 0 | No | No | Control test to examine soil stratigraphy. |
| 18 | 4 | 1 | 0 | No | No | Control test to examine soil stratigraphy. |
| 19 | 4 | 1 | 0 | No | No | Control test to examine soil stratigraphy. |
| 20 | 4 | 1 | 0 | No | No | Control test to examine soil stratigraphy. |
| 21 | 2-3 | 1 | 0 | No | No | Control test to examine soil stratigraphy. |
| 22 | 1 | 27 | 0 | No | No | None. |
| 23 | 1 | 22 | 2 | No | No | Prehistoric component found by surface coll. |
| 24 | 1 | 1 | 0 | No | No | Control test to examine soil stratigraphy. |
| 25 | 1 | 1 | 0 | No | No | Control test to examine soil stratigraphy. |
| 26 | 3 | 1 | 0 | No | No | Control test to examine soil stratigraphy. |
| 27 | 3 | 1 | 0 | No | No | Control test to examine soil stratigraphy. |
| 28 | 4 | 71 | 19 | #81 | No | None. |
| 29 | 1 | 47 | 0 | No | No | None. |
| 30 | 3 | 1 | 0 | No | No | Control test to examine soil stratigraphy. |
| 31 | 2 | 1 | 0 | No | No | Control test to examine soil stratigraphy. |
| 32 | 4 | 1 | 0 | No | No | Control test to examine soil stratigraphy. |
| 33 | 4 | 43 | 24 | No | No | Prehistoric component found by surface coll. |
| 34 | 1-3 | 34 | 2 | No | #10, #11 | On ridge in area reported as Site #1. |
| 35 | 1 | 107 | 1 | No | No | Historic trinket found in ST32 near Site #74. |
| 36 | 4 | 123 | 39 | #82 | No | None. |
| 37 | 1 | 11 | 0 | No | No | Near small pond in area reported as Site #1. |
| 38 | 3 | 16 | 0 | No | No | Ground frozen to depth of 1 to 2 inches. |
| 39 | 4 | 0 | 0 | No | No | Ground frozen, unable to shovel test. |
| 40 | 2 | 0 | 0 | No | No | Just south of site reported by Pierzina. |
| TOTALS: | | 836 | 128 | 6 | 4 | |

LANDFORM STRATA KEY: 1 = Rugged; 2 = Moderate Slopes; 3 = Gentle to Rolling; 4 = Level

shovel tests were to be screened through 1/4-inch mesh hardware cloth. Historic sites were to be mapped and described but not routinely tested or collected. State site numbers were to be given only to prehistoric sites or sites with prehistoric components.

The basic survey strategies were agreed to in a meeting on 15 September 1986 and outlined in a letter sent to Stevenson on 17 September (Appendix C).

Each area surveyed in the field was designated as a sample unit and each sample unit was assigned a number (beginning with number one). The sample units ranged from about 2 to 160 acres in size and came in many shapes (Appendix E). In all, 40 sample units were surveyed (Table 4). Thirteen of the sample units (or about one-third) were investigated by shovel testing. At least one shovel test was placed in most of the remaining sample units as a control to monitor the local soil stratigraphy and look for buried soil horizons. This procedure was abandoned during the last week of the survey due to ground freeze-up.

Of 836 shovel tests excavated, 128 (or 15 percent) produced materials that were removed to the laboratory for identification and analysis. The information presented in Table 4 shows that most shovel tests (over 50 percent) were placed in the landform stratum classified as "Rugged." About 40 percent were placed in the "Level" stratum, while about 6 percent were in the "Moderate" stratum, and 1 percent were in the "Gentle to Rolling" stratum.

In the field, cultural material discoveries were assigned temporary find spot numbers (for isolated finds) or field numbers (for sites). To avoid confusion all field numbers were prefaced with the year (for example, 86-1, 86-2, etc.). Shovel testing lead to the discovery of six sites and four find spots that would not have been found by surface reconnaissance alone (Table 4).

Once located, sites were examined for visible features, artifacts, and topographic details. Features such as depressions, building outlines, and roads were routinely mapped. Historic artifacts were not collected during the survey, because of the large volume of materials observed and the recognition that the greatest study potential of the materials lies in their in situ context. Exceptions to this rule were those historic materials found in shovel tests and a single hand wrought nail recovered at a suspected trading post site (Site #63) at the mouth of the Crow Wing River. Provenience was maintained for prehistoric artifacts recovered through surface collection and shovel tests

(Appendix G). Site maps were produced with a hand-held compass and pacing or taping to determine distances. Unless English linear measurements were deemed relevant, all distances were recorded in the metric system. Mapping projects were aided by the use of USGS quadrangles and other maps provided by the Camp staff.

For future reference and documentation, some of the sites were photographed in 35mm color slide and 35mm black-and-white negative formats. Dense forest conditions made photography a useless pursuit in recording many of the sites.

During the survey considerable time was spent at the Crow Wing, Morrison, and Todd county courthouses searching for information on early townsites in the Camp Ripley area. Specific goals were to locate the "lost" plat of the town of Chippewa and learn more about the origin and use of the townsites of Chippewa, West Crow Wing, and Crow Wing City. After the field work was completed, a check of the county records at the University of Minnesota, Department of Anthropology turned up information on one possible prehistoric site within the reserve.

Finally, during the survey, a record was made of the various kinds of workable stone observed within each sample unit. These included those types commonly found in prehistoric chipped-stone tool assemblages in the Mississippi Headwaters Region. It was hoped this exercise might provide some useful (albeit unscientific) measure of where stone raw materials might be found on this landscape and whether their distribution influenced prehistoric settlement or land use.

Field Conditions and Problems

There were other compelling reasons why a mathematically-defined sampling regime would have been difficult to use in surveying the reserve--at least in the fall of 1986. One problem arose from what has become an increasingly erratic Midwestern climate. The high waters encountered during the spring survey (Birk 1986:19) was only a taste of the downright nasty moisture conditions that faced the survey in the early fall. From August to early October the weather was a much-maligned topic of conversation as high winds and gully-washing rains seemed to hit Morrison County every 48 hours.

The abundant moisture adversely affected the early phases of the present survey in several ways. Outside of the cantonment area the roads and trails in the reserve are made

of natural materials. Many of these avenues were transformed by the rains into slippery, rutted washboards or potholed quagmires. The result was reduced mobility and access and more hazardous driving. On two occasions the survey team got stuck in remote areas of the reserve.

The excessive moisture also raised the water table causing many otherwise elevated areas to become inundated or waterlogged. Creeks, swamps, floodplains, and backwater areas along the Mississippi were basically underwater in late September-early October. Even after the rains stopped and the waters subsided attempts to shovel test the floodplain and marginal uplands southwest of Pipe Island were cut short when the water table was encountered at 20 to 30cm (in the area of Sites #69, #75, and #80; Appendix F). Waterlogged clayish soils were particularly difficult to pass through the screens when shovel testing.

Fields and other low-lying terrain associated with the "Glacial Lake Plain and Outwash Terrace" stratum were also flooded. The initial survey of Site #64, a farmstead north of Round Lake, revealed that most of the surrounding area was inundated. In late September a cellar depression at this site had the appearance of a swimming pool.

By late October, the rains diminished and most of the roads and trails were again passable for vehicles with two-wheel drive. A return visit to Site #64 on November 11, showed that the water level in the cellar had dropped about five feet in the preceding eight weeks! Likewise, the backwater at Site #17--the suspected Stanchfield's Lumber Camp Site (Birk 1986:30)--that had been filled by the high waters of the Mississippi in September, was found to be drained in early November.

A second climatic factor that shortened the survey was the early arrival of winter. Beginning on 6 November, the rains returned, the temperature dropped, and the wind chill became "a force to be reckoned with." On 10 November, the high was only 11 degrees and the first snow fell. The snow marked the end of surface collecting for the season, but assisted the discovery of surface features. During the day, one of the survey Jeeps was damaged in a collision with another vehicle (no one was hurt). The same hapless Jeep was later stuck and abandoned in a deep icy mudhole in the foothills southeast of Pillager. Of greater concern was that the ground was freezing and becoming difficult to penetrate with shovels. To keep hands and feet from succumbing to frost-bite the survey team periodically found it necessary to sit in the vehicles with the heaters running.

The same day a large whitetail buck with a shattered front leg was started from his bed along the Crow Wing River. This pathetic sight--an apparent victim of a negligent deer hunter--was immediately reported to the Gate Guard who, in turn, reported it to the local DNR Conservation Officer.

By 11 November the ground was frozen down to three inches and shovel testing was all but impossible. The following day the wind chill ranged from 35 to 50 degrees below zero! The conditions improved on 14 November when the temperature soared into the mid-20's. On the last day of the survey (15 November) the ground was covered with two inches of fresh snow. Thus, most of the last week of the survey was spent processing artifacts, redrafting maps, or doing surveys in areas where surface features were expected. It was during this period of wintry weather that Site #10 (a possible shanty claim at the Chippewa Townsite) and Site #63 (a possible historic trading post site) were found and mapped.

In comparison to the rain and cold, other survey problems seem minor. One problem was when the vegetation was downed by an early frost. The fallen leaves (oak, aspen, maple, hazel brush, etc.) improved lateral visibility in the woods, but blanketed ground areas (trails, firebreaks, fields, etc.) that were targeted for surface inspection.

The approaching winter season made for shorter days with decreased visibility in the early morning and late afternoon--especially when the sky was overcast. Gazing into a shovel test probe under these conditions was like peering into a black hole. The survey crew drove to the Camp in subdued light one overcast morning and then forgot to turn off their headlights when they arrived at a designated sample unit. When they later returned to the Jeep, they found the battery dead. On another occasion they helped a DNR fisheries team start their vehicle when their battery ran down.

It was difficult to find persons who lived or worked in the reserve area that knew of prehistoric sites or materials found in that region. One of the best informant leads for a prehistoric site turned out to be within an area that is now permanently "off limits."

In many areas discarded military hardware and other evidence of military training was observed that might complicate future archaeological studies. Many sites are littered with cartridges, canisters, communications wire, tank traps, and other items that have contaminated earlier deposits. A small-caliber shell casing left in a roadway flattened one of the Jeep tires causing delay and inconvenience. One day

a possible live mortar round was found in a fire break and reported to Camp Security. The presence of stray ordnance (spent or otherwise) and the frequent sounds of discharging firearms (near or far) was a constant concern of the survey team. Occasional locked gates, especially during training periods or the deer hunting season, also limited access to otherwise open areas. Daily checks with Camp Security revealed the location, type, and duration of military exercises and negated most backtracking and potential for stress.

Another, more serious problem was the discovery that heavy track vehicles used in the reserve have shattered various lithic raw materials in such a way that the resulting shatter is difficult or impossible to differentiate from prehistoric debitage (stone wastage). This shattering process seems to occur in two ways: either from the sheer weight or pressure of a passing track vehicle, or from a stone being pulled into the track mechanism where it is smashed between moving parts. In one instance, a shattered white quartz cobble found in a "tank track" was unaltered and retained the stone's original shape. More common was a scattering of broken stones and pebbles, spread by vehicular movement. A possible key to such breakage and distribution is that most pieces might be found on or near the surface in areas obviously disturbed or altered by heavy vehicles. The "shatter" should consist of some lithic raw materials that are foreign to local prehistoric lithic assemblages. Some pieces, in fact, have a "crushed gravel" appearance.

Despite these annoyances, the sampling survey produced some interesting results. Most of the goals set by the Corps and the IMA were fulfilled, and several field and research discoveries were made that should help shape future study and preservation plans. These discoveries are described in the next chapter.

Laboratory Procedures

Upon completion of the survey, the collected artifacts and data were taken to the Institute for Minnesota Archaeology Laboratory in Minneapolis for study and curation. The field notes and other records were reviewed, labeled, and placed in files for future storage and use. The project file for these materials is labelled "Camp Ripley, Morrison County, Minnesota. Sampling Survey, 1986." The artifacts (Appendix G) were catalogued by site or find spot.

For convenience and continuity, the series of site numbers started by Fay (1985) was retained and added to during the

survey. For example, Site #10 (the Chippewa townsite) was re-examined and the newly inventoried sites were assigned numbers #63 through #82. Site #2, the area of the Prosser Farm, contains several discrete cultural resources that have been assigned individual numbers. These include Site #16 (the Crow Wing Island ford), Site #63 (a possible historic trading post site), and Site #82 (a large prehistoric lithic scatter). Sites with prehistoric components (that is, Sites #75 through #82) have been assigned state site numbers 21M025 through 21M032 by the State Archaeologists Office.

Through a technical error, Site #24--a farmstead inventoried during Fay's initial survey (Fay 1985,2:40)--was subsumed as a part of multi-component Site #76 during the present survey. Thus, Site #24 actually makes up the historic component of Site #76 (21M026).

The field and analytical results of the survey are given in the following chapter.

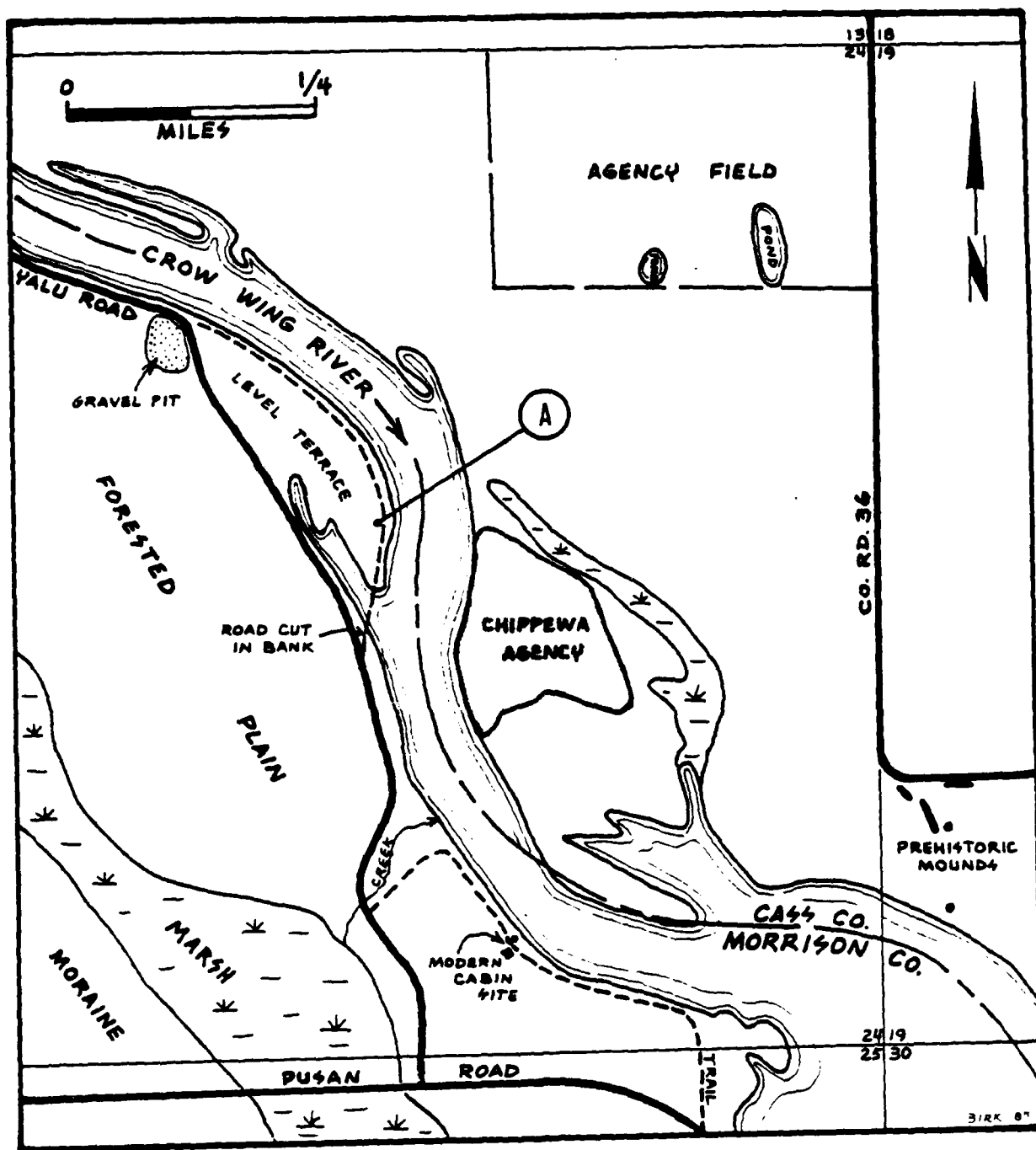


Figure 3. Map of the Chippewa Townsite Area. Feature A, a possible man-made earthen platform, lies on a low floodplain terrace on the west bank of the Crow Wing River. Feature A may mark the remains of a late 1850's townsite improvement described as a "log shanty."

4. SURVEY RESULTS

This chapter reviews cultural resource data gathered by the Institute for Minnesota Archaeology during the 1986 sampling survey at Camp Ripley. Included is information on sites, find spots, and informant interviews that help document the presence of past human groups in the reserve area.

Background Information

The Phase I sampling survey found evidence for 21 sites that have historic, prehistoric, or multiple components. The 13 historic sites include 11 homesteads or farms, one possible pre-1820 trading post (Site #63), and one possible early townsite shanty claim site (Site #10). Of five prehistoric sites, four produced lithic materials and one produced both lithics and ceramics. The three multi-component sites contained prehistoric stone artifacts and historic homestead materials. The prehistoric component of one of the three sites also produced ceramics.

In addition to these sites, eight lithic "find spots" were found during the survey. Four find spots were found through surface reconnaissance and four through shovel testing. Informant interviews, reviewed at the end of this chapter, provide some insights into past collecting activities in the reserve.

Artifacts recovered during the survey are listed in Appendix G by sample unit, control number (site or find spot designation), and method of recovery. Like the previous Phase I survey, the number of "diagnostic" prehistoric artifacts found was limited and disappointing. The ceramics were basically small pieces or "crumbs." The lithic raw materials were generally typical of stone types found on prehistoric sites throughout central Minnesota (white quartz, Tongue River silicas, Knife River flint, agate, jasper, etc.). Site #82, a prehistoric site complex on the Crow Wing River, produced oolitic chert which is uncommon to this area. The most illustrative artifacts found during the survey are shown in Figure 19.

Each of the following site reports gives the number, location, elevation, environmental setting, landform stratum, and current condition of the site. Sample Unit numbers designate the survey area in which the site was found. Additional discussions include site histories and, where appropriate, the general attributes of site size, content, and density. The location of sites and landform stratum are shown on United States Geological Survey (USGS)

Quadrangle maps (Appendix F). Individual site maps depict selected cultural, terrain, and water features. Recommendations for further work are given at the end of each site report.

HISTORIC_SITES

Site Number: #10 **Site Type:** "Chippewa" Townsite
Sample Unit: 39 **Stratum:** 4 (Level outwash terrace)
Legal Description: Center of Section 24 T133N-R30W
 (Rosing Township)
USGS Quad: Pillager, Minnesota (1954). 7.5' Series.

Description: Site #10 (Field Number 86-23) is the historic townsite of "Chippewa" defined by Fay (1985,2:22) and Birk (1986:80-84). The site lies in the north half of the military reserve on the south bank of the Crow Wing River opposite the old Chippewa Agency (Birk 1971; 1972). The general elevation of the site area is about 1180 feet above mean sea level (Appendix F-1).

Feature A is a single, apparently man-made platform visible on the surface on an alluvial floodplain terrace (Fig. 3). This feature is near the downstream end of the terrace about 33 meters north of an old back-channel cut and 0.6 meters (two feet) above the river (Fig. 4). A metal sign on the bank of the river, 12 meters northeast of the feature, reads: "Danger No Trespassing. Military Reservation." The terrace supports a deciduous forest with scattered white pine and a thin understory of young trees and brush. Poison ivy is present.

Feature A was found after the ground was frozen and two to three inches of snow had accumulated. The site is an elevated earthen platform about five meters (16.5 feet) square and 0.3 meters (one foot) high. The edges of the platform are defined by shallow, irregular, and discontinuous trenches or "borrow pits." A shallow depression in the south half of the platform is about one meter in diameter. No artifacts were observed or collected at the time of the survey and shovel testing and remote sensing with a metal detector were not attempted.

Discussion: The earthen platform could be the remains of the only known improvement built on the platted townsite of "Chippewa." That improvement was a simple log-shanty built across the river from the old Chippewa Agency sometime

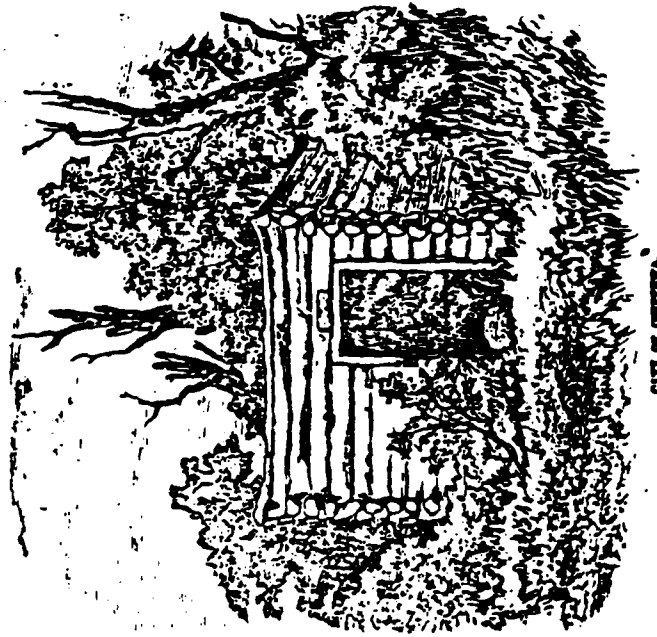
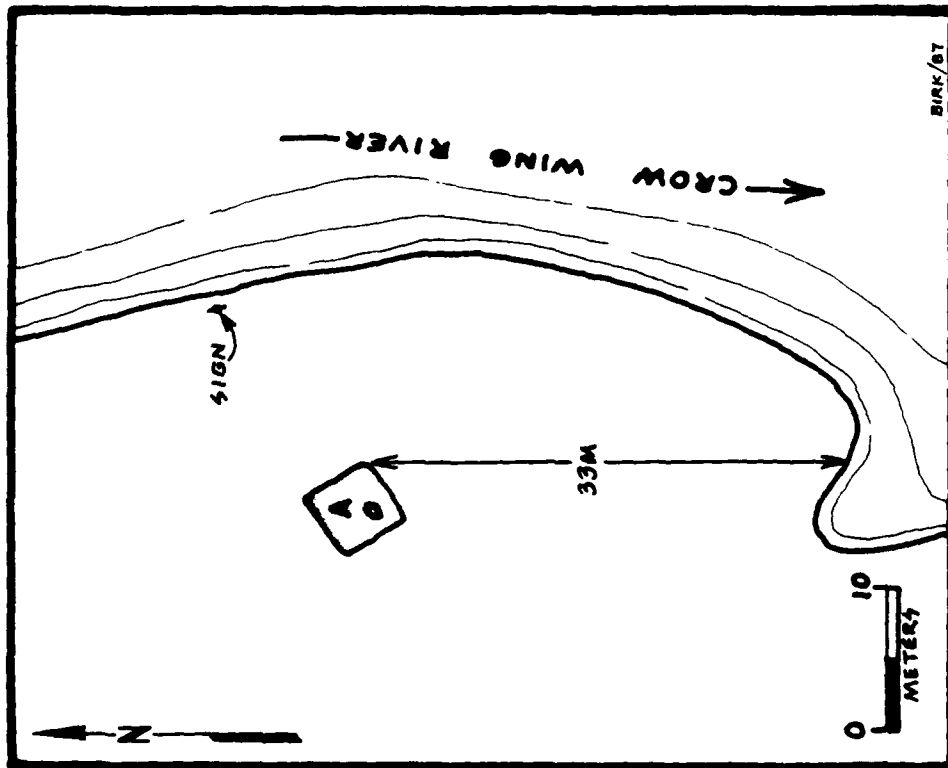


Figure 4. Chippewa Townsite Development. LEFT: A detailed sketch map of Feature A; RIGHT: The log shanty that represented the limit of city improvements in 1859 (adapted from Hallock 1859).

before 1859. The shanty was said to be in a "tangled forest...and nearly inundated by the high water of the river" (Hallock 1859:50-51; quoted by Birk 1986:84). The parameters of these observations seem a good match for the general location and appearance of Feature A.

During the present survey, an attempt was made to find the original plat of the Chippewa townsite and to document the history of transactions that may have preceded any townsite developments. Towards this end, an extensive records check was conducted at the Recorder's Offices in Crow Wing, Morrison, and Todd Counties.

The townsite plat was not found. However, evidence was recovered to show that copies of the plat had been filed with the Register of Deeds at Morrison County on 31 July 1857, and at Todd County on 25 September in the same year (MCRO 1857:324, 381). Upon further inquiry, neither of these offices could produce the plat, nor could they explain why it was not listed or available in their files. The Todd County Registrar and personnel at the Todd County Abstract Office in Long Prairie believe that all early county records pertaining to areas outside the present boundaries of Todd County were transferred to other appropriate county offices in 1864 when the county lines were changed. If so, the old Todd County records for the area now incorporated within Camp Ripley should have been moved to Morrison County. Perhaps a "search warrant" will be needed to finally resolve this issue (Birk 1986:84)!

The records at Morrison County provide the best known information on land sales at the townsite of Chippewa. These records in combination with other details of contemporary history give some interesting insights into the lives and times of would-be townsite developers.

In 1857, Minnesota was about to become a state and land speculation was at a fever pitch. Speculators--those expecting to reap a financial harvest from the anticipated growth of immigration and commerce--were busy designing new towns throughout the territory to attract investors. The boom years of 1855 and 1856 promoted frenzied buying as people of all walks of life scrambled to extend their enterprise to the limits of their capital and credit. Spiraling land prices quickly reached heights out of all proportion to actual value (Patchin 1917:133).

It was in this atmosphere of intense speculation that the "papertown" of Chippewa was born. In the summer of 1857 a man named E. P. Aspinwall was buying and selling townsite real estate in central Minnesota. Aspinwall variably listed

his residence as Crow Wing and St. Anthony, and was related to land surveyor N. P. Aspinwall, with whom he had many business dealings, and Augustus Aspinwall, a merchant at the Chippewa Agency (Hiarod 1930:54; Emily Peake, personal interview). In any case, on 25 July E. P. Aspinwall bought thirteen blocks in the papertown of Elmira in Cass County for a mere \$2.00 (Hiarod 1930:54). On 27 July he recouped his investment by selling 28 blocks in the town of Chippewa for a like amount (MCRO 1857:307).

Aspinwall's Chippewa land sale was to Samuel Adams Medary, Jr., the son of the third (and last) Territorial Governor of Minnesota. In comparison to what Aspinwall's next customer paid, Medary's price of about seven cents per block was a steal. On 31 July, 1857 Obediah Stout Bennett of Hastings, Minnesota, bought five blocks of the Chippewa townsite from Aspinwall for \$1000.00. These tracts included Blocks 3, 5, 31, 35, and 116 (MCRO 1857:324).

At the time of his purchase Bennett was a 23-year old immigrant from Indiana with a desk clerk job at the Burnet House in Hastings. His employers, the proprietors of the hotel, were James R. and Elizabeth E. Nutter (Census Records, 1857; Anonymous 1857a). Hoping to capitalize on the runaway inflation, the Nutters had extended themselves financially and, as of 27 August, were already on public notice for defaulting on a mortgage for some land near Farmington in Dakota County (Anonymous 1857b).

On 9 September, Obediah Stout Bennett began disposing of his Chippewa townsite property to women who lived in Hastings. His first sale was for three lots in Block 3. Elizabeth Nutter agreed to pay \$200.00 for Lot 2 even as the notice in the local paper advertised the Farmington mortgage default (MCRO 1857:360). Harriet A. Stanley, a 19-year old woman from Indiana who resided or worked at the Burnet House, promised \$500.00 for Lot 4 (MCRO 1857:431; Census Records 1857). Malvina G. Turner, a possible relation of Burnet House clerk James P. Turner, Bennett's co-worker, consented to pay \$500.00 for Lot 5 (MCRO 1857:388; Census Records 1857). Thus, at least on paper, Obediah had already turned a profit on his investment at Chippewa within a few weeks of his initial purchase.

Later in September Bennett sold an entire block (Block 31) of his Chippewa real estate to Dewitt C. Williams of Freeport, Illinois for \$100.00 (MCRO 1857:381). Bennett's last known transaction was to Catherine Hennessey a 20-year old Irish immigrant who, with her husband Thomas, was proprietor of another boarding house in Hastings (Census Records 1857). On 9 October, Hennessey agreed to pay

\$500.00 for Lot 3 in Block 3 (MCRO 1857:363). Like others who bought land at Chippewa, Hennessey may have been motivated by a blind faith in the security of real estate investments.

By the fall of 1857 the national economy was in a slump or "Panic." In Minnesota, trade was at a standstill, rents dropped, unemployment flourished, immigration slowed, and money was becoming scarce. The newspapers swelled with notices of mortgage sales and foreclosures (Patchin 1917:138).

Within a year the townsite boom collapsed and speculators who bought into pyramid land schemes like that at Chippewa had to face their losses (Hiarod 1930:55). The last hurrah for Chippewa may have been in 1859 when the alleged English investor Major Tewksbury arrived at the nearby Chippewa Agency to survey his holdings. Armed with "an elaborate map, in which the streets, squares, and public buildings [of the town] were severally delineated," Tewksbury was livid when he observed only a "weather-beaten log-shanty" at the townsite on the opposite bank of the Crow Wing River (Hallock 1859:50-51; Birk 1986:82-84).

Recommendations: Feature A of Site #10 may mark the remains of the only known improvement at the townsite of Chippewa. The apparent earthen platform feature should immediately be examined to determine its origin, nature, and possible eligibility for the National Register. If the site is the location of a token frontier community development, it could be of considerable importance for documenting the mid-1800's townsite boom in Minnesota. The alluvial terrace surrounding this feature should be protected from future camp activities or developments. Finally, more demanding inquiries should be made at the Morrison County Recorder's Office to learn if the Chippewa town plat survives in the inactive files said to be stored in the basement of the courthouse.

Site Number: #24 (See #76) **Site Type:** Farmstead

Sample Unit: 23

Stratum: 1 (Steep sloped moraine)

Legal Description: S 1/2-NE-NE Section 22 T132N-R30W
(Rail Prairie Township)

USGS Quad: Belle Prairie NW, Minnesota (1956). 7.5' Series.

NOTE: Through a technical error Site #24 (as defined by Fay 1985,2:40) has been subsumed as a part of Site #76 in this

report. Fay's Site #24 is the historic farmstead component of this multi-component site (see Figs. 17 and 18).

Site_Number: #63

Site_Type: Trading Post (?)

Sample_Unit: 36

Stratum: 4 (Level alluvial deposits)

Legal_Description: E 1/2-SE-SW 1/4 Section 4 T132N-R29W
(Rail Prairie Township)

USGS_Quad: Baxter, Minnesota (1954). 7.5' Series.

Description: Site #63 (Field Number 86-22) is a component of the Prosser Farm Site or Site #2 as defined by Fay (1985,2:7-8) and Birk (1986:41-48). The site is in the north half of the military reserve on an alluvial floodplain on the west bank of the Mississippi River about 125 meters below the lower mouth of the Crow Wing River (Appendix F-1). The site is almost directly opposite the so-called "Ojibway Rifle Pits" that appear on an esker-like ridge on the east bank of the Mississippi (Brower and Sweney 1903:41; Warren 1957:228-232). Site elevation is 1145 feet above sea level.

The site is on a second terrace about three meters above the river and 15 to 37 meters back from its edge. The terrain in the site area is gently rolling and may be subject to flooding during periods of extreme high water. It is covered with deciduous trees and briars and a seasonal understory of ferns, nettles, and poison ivy. When visited in the spring of 1986 this area was infested with unbelievable hoards of mosquitoes (Birk 1986:48). In contrast, during the present survey the leafy vegetation was down, the ground was frozen, and two to three inches of snow was present.

Cultural features visible on the site include a rock pile, two trenches, and seven depressions (Fig. 5). The rock pile (Feature_H) is a low and relatively circular mound of soil and cobbles. It measures about three meters in diameter and sits on the edge of the second terrace in a position central to the recognized site area. This feature is disturbed by a one-meter diameter hole in the center. The location and appearance of the rock pile, the greasy consistency of the associated soils, and the fact that several of the cobbles are heat fractured suggest this feature to be the remains of a collapsed fireplace.

A hand-wrought square nail (Fig. 19-I) was found on the ground surface about 2.5 meters northwest of the rock pile. While it is risky to date a site from a single artifact, the

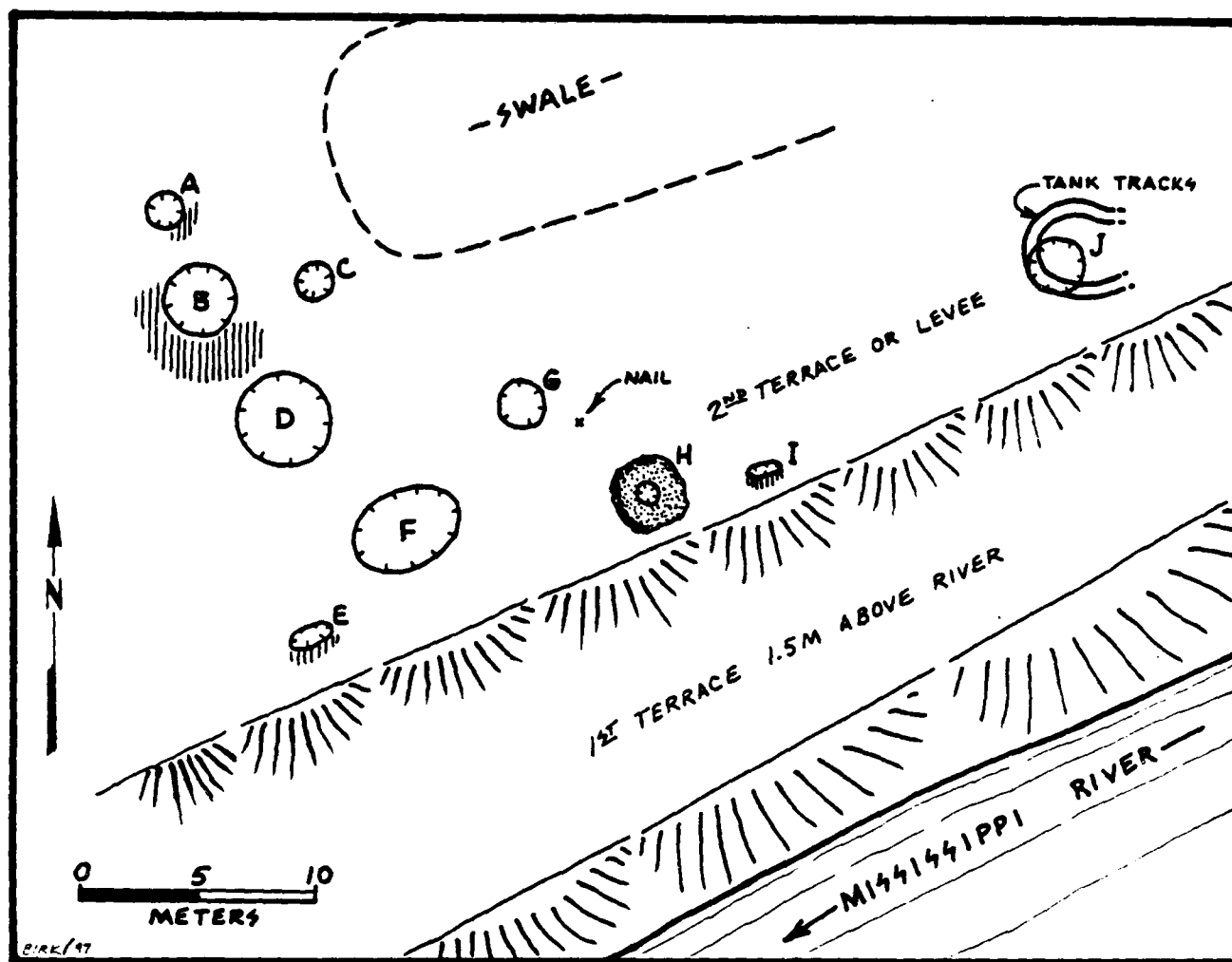


Figure 5. Sketch Map of Site #63, a possible early European trading post on the west bank of the Mississippi near the mouth of the Crow Wing River. Feature H, a circular mound of soil and rocks, may mark the remains of a collapsed fireplace. A hand-wrought square nail found near this feature (illustrated in Fig. 19-I), may date this site to the period before 1820. The presence of so many large depressions remains a mystery. This site was found in the last days of the survey, after the ground was frozen and covered with snow.

nail suggests that the fireplace feature could pre-date 1820. If so, Site #63 may be the remains of an early European habitation associated with the Indian fur trade.

Two linear trenches (Features E and I) on the site are not unlike treefall disturbances (Fig. 5). The trenches lie east and southwest of the probable fireplace near the edge of the second terrace. Both have associated spoil piles along their south sides. The trenches measure 1.5 to 2 meters long and up to 0.5 meters deep.

The seven circular depressions measure 1.5 to 4.5 meters in diameter and up to one meter deep. The presence of so many large holes on the site is a mystery. Six of these depressions (Features A-D, F, and G) lie in the area immediately west and northwest of the probable fireplace, and one (Feature J) sits near the edge of the second terrace about 18 meters to the northeast. Piles of displaced soils are associated with Features A, B, D, E, and I (Fig. 5). Feature J and part of the surrounding area are disturbed by deep tank tracks.

Recommendations: Site #63 is one of the oldest historic sites presently known within the boundaries of the Camp Ripley reserve and the statute limits of Crow Wing State Park. The single recovered artifact, when considered with the history of this locale, suggests this site may date between 1750 and 1820. Further work should be conducted immediately to learn the age, extent, identity, function, and cultural affiliation of this site and to determine its eligibility for the National Register. Because of the high potential for archaeological resources at the confluence of the Crow Wing and Mississippi Rivers (e.g., Brower 1901:60-61; Lothson and Clouse 1985:65; Birk 1986:43-48), the area now included within the statute boundaries of the state park should be off-limits to all future military exercises, activities, or developments.

Site Number: #64

Site Type: Historic Farmstead

Sample Unit: 3

Stratum: 3 (Gentle sloping moraine)

Legal Description: S 1/2-NW & N 1/2-SW Section 22 T131N-R30W (Clough Township).

USGS Quad: Belle Prairie NW, Minnesota (1956). 7.5' Series.

Description: Site #64 (Field Number 86-1) is on the gently rolling, sandy end moraine about 900 meters north of Round Lake in the south half of the military reserve (Appendix

F-2). The site lies north of an unnamed trail, on the west side of Manila Road, about 630 meters north of the junction of Manila and Luzon Roads. Site elevation is about 1230 feet above mean sea level. About 160 meters to the west-northwest of Site #64 is another homestead identified as Site #65 (Fig. 6).

Site #64 consists of five building foundations (labeled Features A-E, Fig. 6) set in a semi-circular arc on a level grassy clearing. Wind breaks of jack and red pine bracket the site area on the north and west sides, and an 18 meter stretch of wire fence stands north of the foundations.

Feature_A, a cellar depression, is the building feature located closest to Manila Road. Feature A is believed to be the site of a residence measuring 7.3 by 9 meters (or 24 by 30 feet). The depression is about 1.5 meters (or 5 feet) deep and was filled with water at the time of the survey. Within the depression is a displaced concrete slab and a number of cement foundation blocks. Two large spruce trees grow nearby.

Feature_B, a possible garage foundation 8 meters southwest of Feature A, is made of brick and overgrown with vegetation. The foundation measures 3.2 by 6.3 meters (about 10 by 20 feet).

Feature_C, the apparent remains of a milk-house, is 11 meters west of Feature B. It appears as a brick foundation surrounding a concrete floor. The foundation measures 3 by 4.3 meters (about 10 by 14 feet). A circular, brick-lined well or shaft set in the northeast corner of the floor is of unknown depth.

Feature_D, the largest of the building sites, is the remains of a barn measuring 8 by 9.5 meters (about 26 by 31 feet). This feature is 3 meters west of the milk-house. It consists of a concrete floor with two manure gutters set equidistance from and parallel to the longer edges of the floor. An addition that once projecting from the southeast corner of the barn is marked by a concrete floor measuring 2.2 by 3 meters (7 by 10 feet).

Feature_E, the smallest building site, is a concrete floor measuring 3 to 3.4 meters (10 by 11 feet). This probable shed site, 7 meters north of the barn foundation, is almost completely covered with vegetation.

The area south and east of Site #64 was inundated at the time of the survey and was not investigated. Selected buildings from this site shown on the 1969 Camp Ripley and

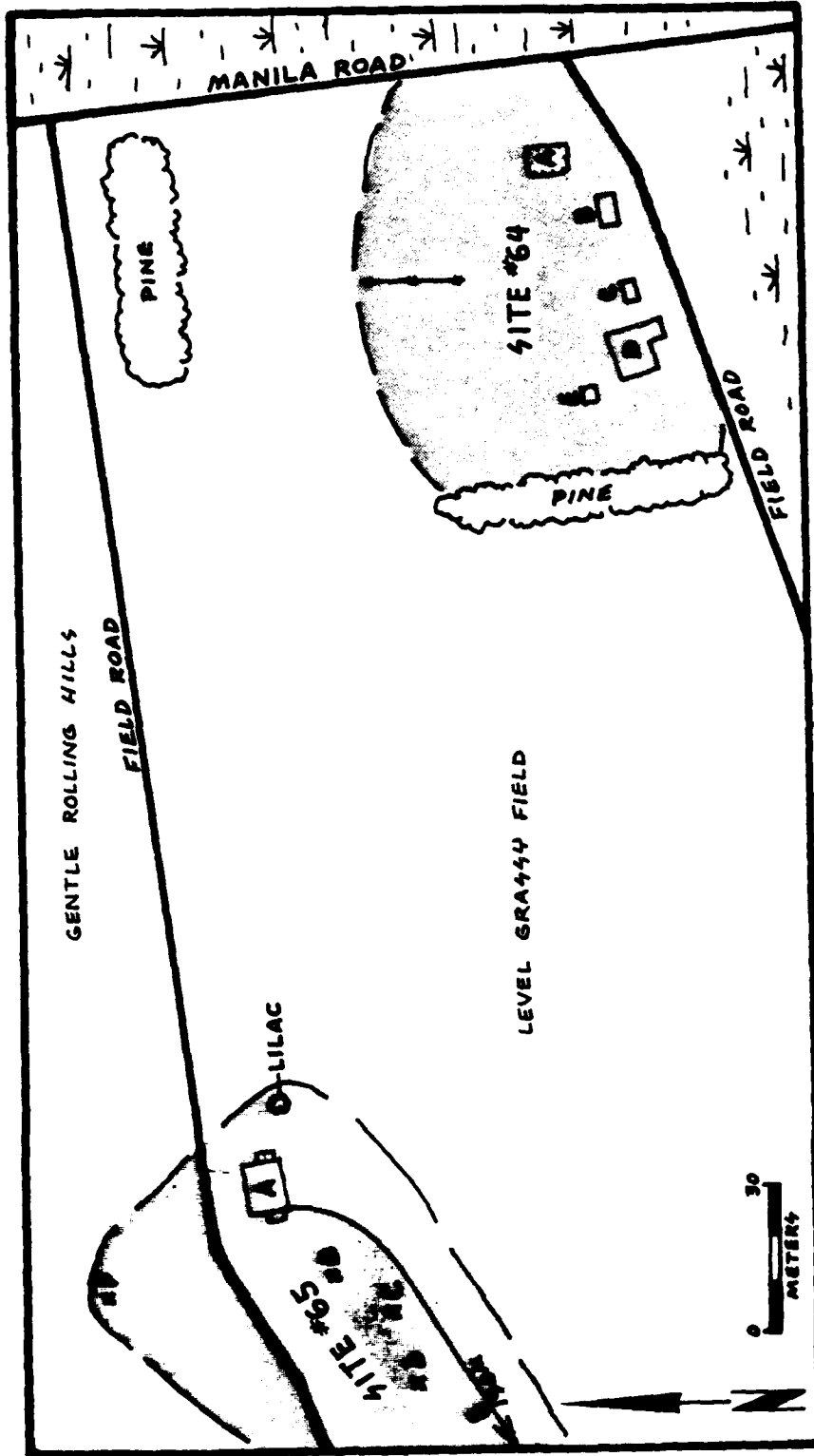


Figure 6. Sketch Map of Sites #64 and #65. These two historic farmsteads are on sandy rolling terrain about 900 meters north of Round Lake. The features of each site are described in the text. At the time of the initial survey the large cellar depression of Site #64 (Feature A) was full of water and the areas across the roads to the east and south were flooded.

Vicinity Military Map (Stock No. V772SCAMPRIPL) include another structure on the south side of the unnamed east-west trail that was not recorded during the IMA survey due to the high water. These buildings are shown on the map in the area of coordinates 51-10550 meters north and 3-84350 meters east.

No artifacts were collected from Site #64 during the survey.

Recommendations: As the remains of a historic homestead, this site may be eligible to the National Register. Additional archival research and informant interviews might help determine the former sequence of ownership, occupancy, and use of the site. At a minimum the immediate site area should be protected from future camp activities.

Site Number: #65 Site Type: Historic Homestead
Sample Unit: 3 Stratum: 3 (Gentle sloping moraine)
Legal Description: S 1/2-NW 1/4 Section 22 T131N-R30W
 (Clough Township).

USGS Quad: Belle Prairie NW, Minnesota (1956). 7.5' Series.

Description: Site #65 (Field Number 86-2) is situated on the gently rolling, sandy end moraine about 900 meters north of Round Lake in the southern half of the military reserve (Appendix F-2). The site lies on an unnamed east-west trail that intersects Manila Road about 550 meters south of the junction of Manila and Marne Roads. Site elevation is about 1240 feet above mean sea level. Site #65 is about 160 meters west-northwest of Site #64.

Site #65 sits in rolling grassy field with scattered birch and oak trees. Just west of the site is a moderately sloped hill cut by a large gravel pit.

Feature A, the most prominent feature on the site, is a concrete foundation that forms the walls of a cellar approximately 8 feet in depth (Fig. 6). This foundation measures 7.3 by 8 meters (24 by 26 feet) and probably represents the remains of a former residence. The original structure had additions on its east and west sides. These wings are marked by concrete aprons measuring 2.4 by 5.6 meters (8 by 18 feet) and elevated about 0.6 meters (or two feet) above the ground surface.

A lilac bush grows east of the house foundation and parts of five possible collapsed sheds are located nearby (Features

B-F; Fig. 6). Four of the apparent outbuildings are southwest of the house, including Feature_E which is 190 meters away. Feature_F is a section of roof about 35 meters northwest of the house on the north side of the unnamed trail. These features generally appear as collapsed piles of shingles and lumber.

Selected buildings from this site are shown on the 1969 Camp Ripley and Vicinity Military Map (Stock No. V772SCANPRIPL) in the area of coordinates S1-10600 meters north and 3-84200 meters east.

No artifacts were collected from Site #65 during the survey.

Recommendations: As the remains of a historic homestead, this site may be eligible to the National Register. Additional archival research and informant interviews might help determine the former sequence of ownership, occupancy, and use of the site. At a minimum, the immediate site area should be protected from future camp activities.

Site_Number: #66 Site_Type: Historic homestead
Sample_Unit: 5 Stratum: 2 (Moderate sloping moraine)
Legal_Description: NW-SE-SW 1/4 Section 14 T131N-R30W
 (Clough Township)

USGS_Quad: Belle Prairie NW, Minnesota (1956). 7.5' Series.

Description: Site #66 (Field Number 86-3) is in the south half of the military reserve in the moderately sloped end moraine about 1/3 mile northeast of Miller Lake (Appendix F-2). The site is in a grassy field edged by mixed pine and deciduous forest. It sits at a general elevation of about 1230 feet above mean sea level.

The site consists of three features (Fig. 7) and a scatter of historic artifacts such as stoneware, window glass, and bottle glass fragments. The focus of the site is Feature_A, a concrete foundation measuring 6.8 by 13 meters (22 by 42 feet). The interior of the foundation is grown up with grass and is separated nearly in half by a partition wall.

Other features on the site include a rock pile (Feature_B) 1.5 meters in diameter located 12 meters west of the foundation, and a depression (Feature_C) about 2 meters in diameter by 1.5 meters deep, set 13 meters east of the foundation.

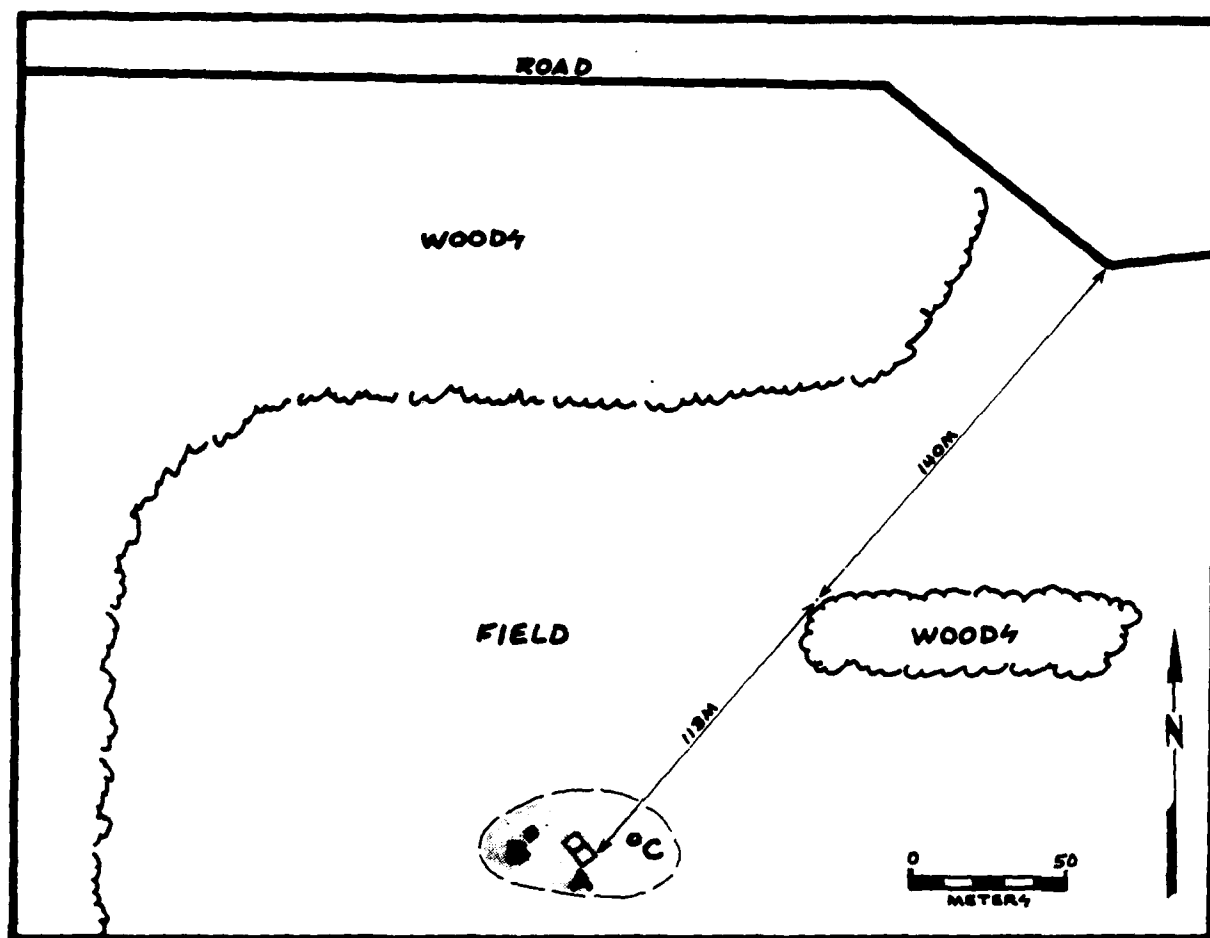


Figure 7. Sketch Map of Site #66, a historic homestead found in a grassy field about 1/3 mile northeast of Miller Lake. The site features are described in the text.

No artifacts were collected from Site #66 during the survey.

Recommendations: As the remains of a historic homestead, this site may be eligible to the National Register. Additional archival research and informant interviews might help determine the former sequence of ownership, occupancy, and use of the site. At a minimum the immediate site area should be protected from future camp activities.

Site Number: #67 **Site Type:** Historic Homestead

Sample Unit: 10 **Stratum:** 3 (Gentle sloping moraine)

Legal Description: N 1/2-SE-SW Section 4 T131-R30W
(Clough Township)

USGS Quad: Belle Prairie NW, MN (1956). 7.5' Series.

Description: Site #67 (Field Number 86-6) is in the south half of the military reserve about 1/2 mile northwest of Mallard Lake and 100 to 150 meters east of Bataan Road (Appendix F-2). The site lies in an unforested basin suggestive of a glacial lake bed. The basin is in the stratum of gentle sloping terrain and is edged by moderately-sloped end moraine on the east. The east moraine is covered with a sparse deciduous forest. The basin area lies at a general elevation of 1380 feet above mean sea level and has been heavily disturbed by Camp activities. A large earthen embankment and railroad track just north of the site are shown on the Camp Ripley and Vicinity Military Map (Stock No. V772SCAMPRIPL) in the area of coordinates 51-15100 meters north and 3-86650 meters east.

The site includes the remains of three structures (Fig. 8). The largest building site, Feature A is marked by a stone and concrete foundation measuring 8 by 10.4 meters (26 by 34 feet). Small patches of concrete floor are present within this foundation. About 14 meters north of Feature A is Feature B, a circular silo foundation constructed of brick. This foundation is 4.5 meters in diameter and the bricks are laid in a pattern in which they radiate length-wise from its center. The final building site, Feature C is about 48 meters west-northwest of Feature B. It is an earthen building embankment measuring about 6 meters square with broken cement and stones present in the northeast corner.

Historic glass, metal fragments, and nails were observed on gopher mounds in the area of these features. None were collected.

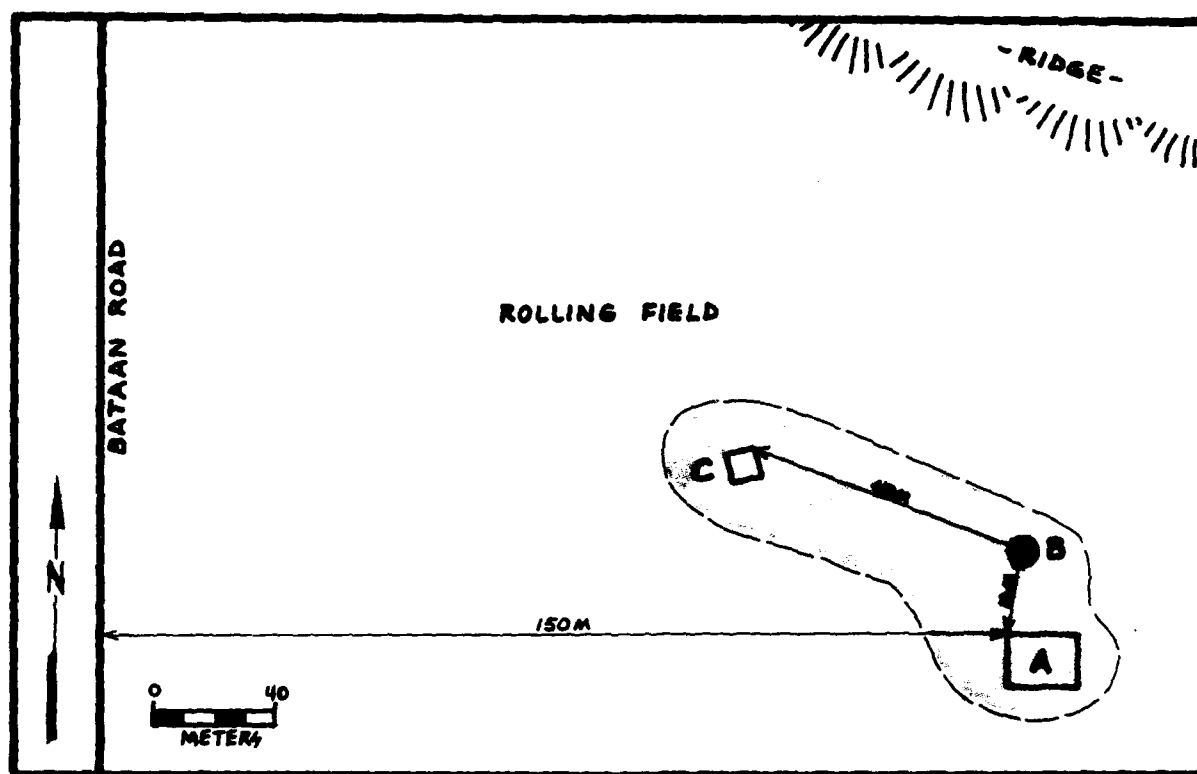


Figure 8. Sketch Map of Site #67, a historic homestead located about 1/2 mile northwest of Mallard Lake. The site features are described in the text.

Recommendations: As the remains of a historic homestead, this site may be eligible to the National Register. Additional archival research and informant interviews might help determine the former sequence of ownership, occupancy, and use of the site. At a minimum the immediate site area should be protected from future camp activities.

Site_Number: #68

Site_Type: Historic Homestead

Sample_Unit: 19

Stratum: 4 (Level outwash terrace)

Legal_Description: E 1/2-NW-SE Section 6 T131N-R29W
(Clough Township)

USGS_Quad: Belle Prairie NW, Minnesota (1956). 7.5' Series.

Description: Site #68 (Field Number 86-9) is in the south half of the military reserve about 1/4 mile west of the Mississippi River and 1/4 mile northwest of Site #3 (the Camp Ripley Mounds). The site lies about 60 meters east of East Boundary Road in a grassy field with scattered birch, poplar and oak trees, and brush (Appendix F-2). The site is cut by an old roadbed. Site elevation is about 1160 feet above mean sea level.

Site #68 includes four possible building features, a cluster of granite boulders, and a pile of miscellaneous historic garbage (Fig. 9). Feature_A, a concrete house foundation at the south end of the site, measures 5 by 7.75 meters (about 16 by 25 feet). The foundation surrounds a full basement with a descending set of stairs projecting from the northwest corner. A birch tree is presently growing in the floor of the basement.

Within 10 meters northeast and northwest of Feature A are two small outbuilding depressions (Features B and C). Feature_B, the western-most of these depressions, is outlined with wooden planks. Feature_C could be an old outhouse pit.

About 15 meters north of Feature A is the rectangular depression of another outbuilding (Feature_D). At a point about midway between these two features the roadbed curves obliquely to the northwest where it cuts through a cluster of granite boulders (Feature_E). These boulders could once have served as shed footings. About 20 meters farther northwest was noted a garbage pile with bed springs and a wash tub.

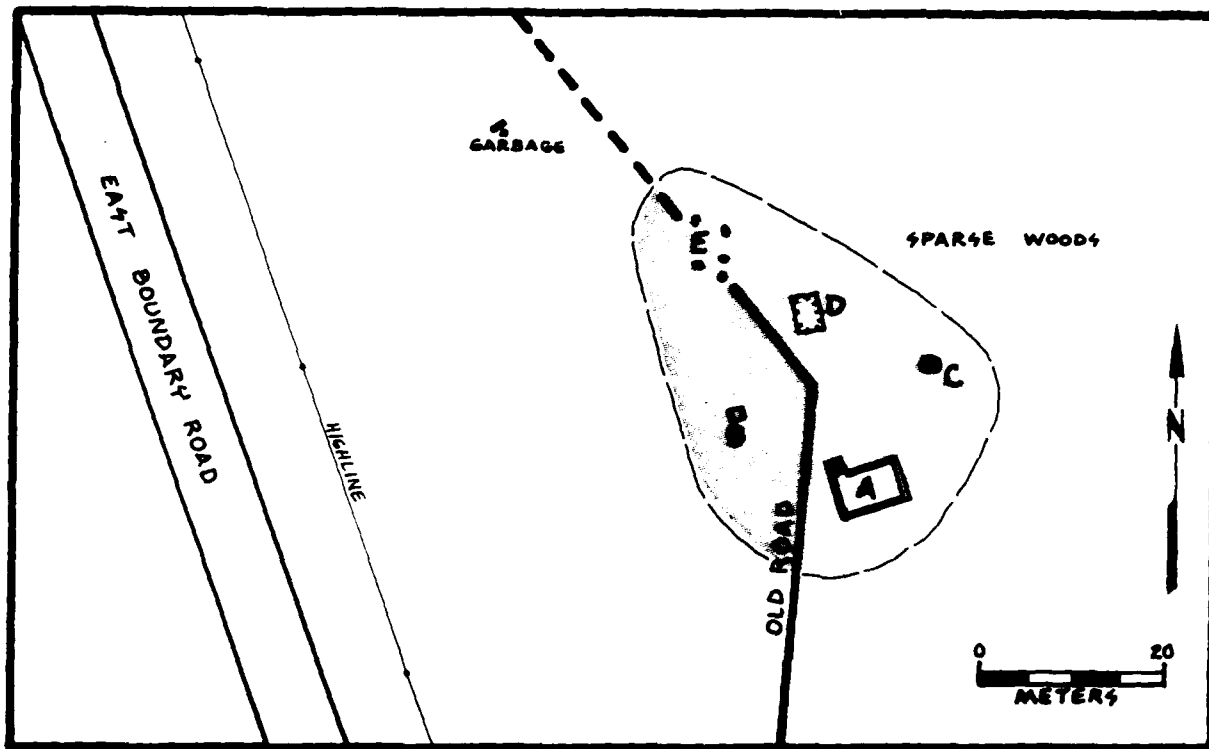


Figure 9. Sketch Map of Site #68, a historic homestead situated in a grassy field about 1/4 mile northwest of the Camp Ripley Mounds (Site #3). The site features are described in the text.

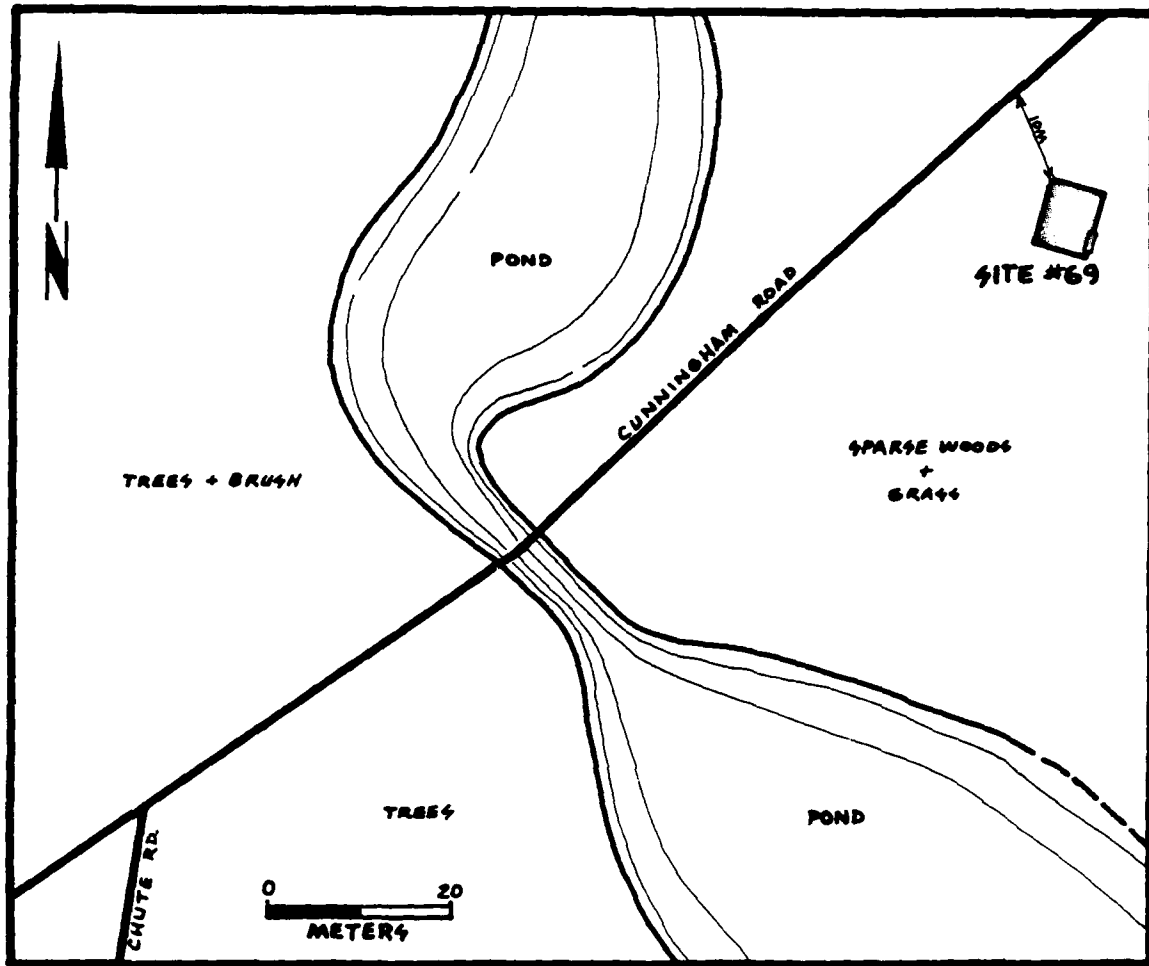


Figure 10. Sketch Map of Site #69, the remains of an historic building with a standing fireplace. This site is on the edge of Hagen Pond about 1/4 mile west of the Mississippi River.

South of Feature A a north-south line of fence posts was observed along the west edge of a grove of dense brush.

Recommendations: As the remains of a historic homestead, this site may be eligible to the National Register. Additional archival research and informant interviews might help determine the former sequence of ownership, occupancy, and use of the site. At a minimum the immediate site area should be protected from future camp activities.

Site Number: #69

Site Type: Historic Building Site

Sample Unit: 20

Stratum: 4 (Level outwash terrace)

Legal Description: NW-NE-NW 1/4 Section 30 T131N-R29W
(Clough Township)

USGS Quad: Belle Prairie NW, Minnesota (1956). 7.5' Series.

Description: Site #69 (Field Number 86-10) is in the south half of the military reserve about 1/4 mile west of the Mississippi River and 1/3 mile southwest of Pipe Island (Appendix F-2). The site is 10 meters south of Cunningham Road and just east of Hagan Pond (Fig. 10). The site area is a grassy opening surrounded by forest and marsh and sits at an elevation of about 1140 feet above mean sea level.

Site #69, the remains of a single building, is a concrete floor with a standing fireplace chimney on its east edge. The floor measures 6 by 7.4 meter (about 20 by 24 feet). The fireplace chimney is made of stone, stands about 5.5 meters tall, and has a stone mantle 1.3 meters above the floor.

Recommendations: This site and the fireplace are now used by the National Guard as a field picnic spot. This use has done little to detract from the historic value of the structural remains and should be allowed to continue. Additional research might help determine the former sequence of ownership, occupancy, and use of the site.

Site Number: #70

Site Type: Historic Homestead

Sample Unit: 24

Stratum: 1 (Steep sloped moraine)

Legal Description: S 1/2-S 1/2-SW-SW Section 12 T132N-R30W
(Rail Prairie Township)

USGS Quad: Pillager, Minnesota (1954). 7.5' Series.

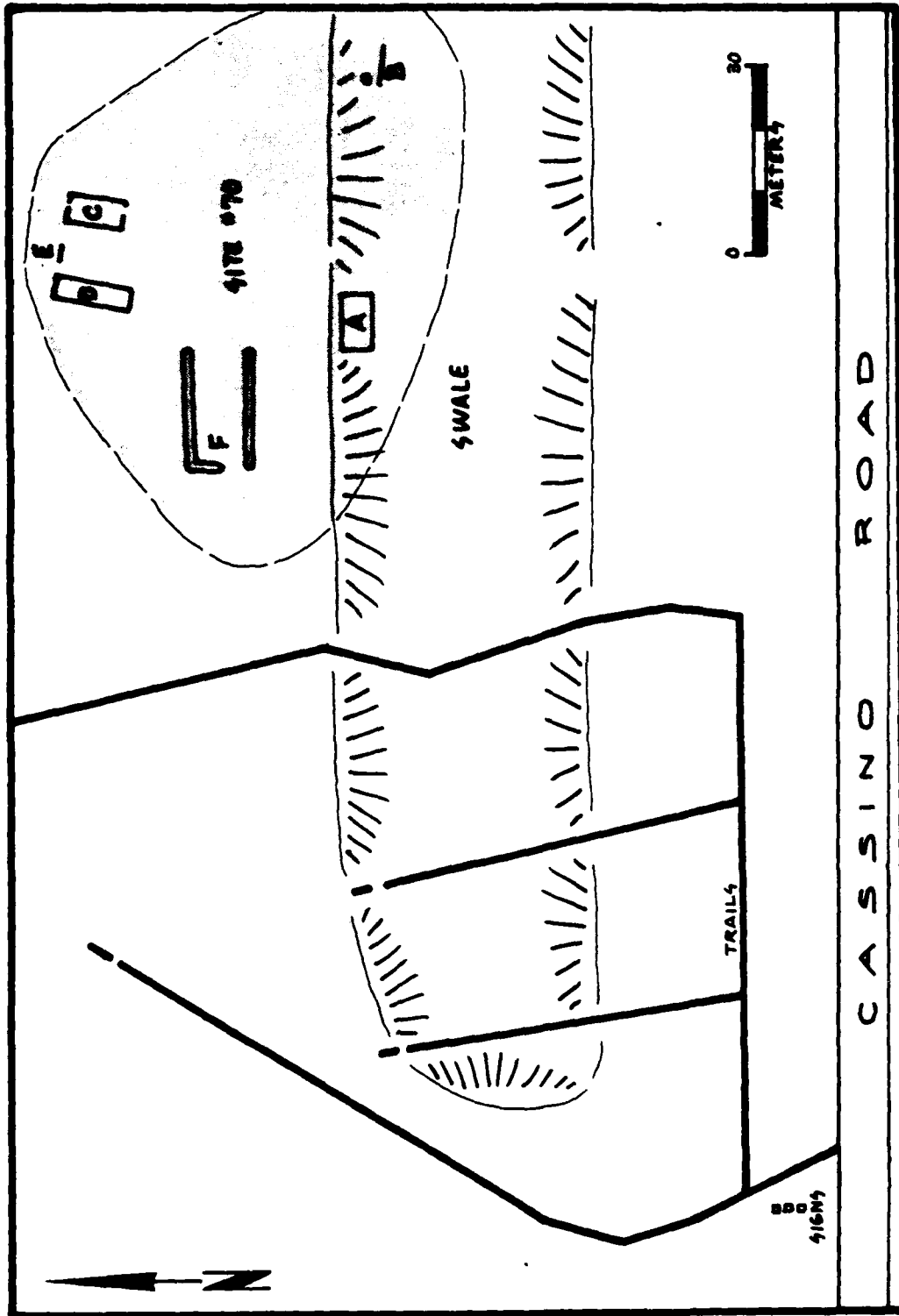


Figure 11. Sketch Map of Site #70, a historic homestead about 1/2 mile south-east of Tamarack Lake. The trails connecting with Cassino Road southwest of the site lead to various military training areas farther north. Site features are described in the text.

Description: Site #70 (Field Number 86-13) is in the north half of the military reserve in a heavily-used range area about 1/2 mile southeast of Tamarack Lake (Appendix F-1). The site is in a field on the north edge of a swale between 70 and 120 meters north of Cassino Road. About 140 meters southwest of the site, at the point where a field access trail leaves Cassino Road, a group of signs indicates the presence of various missile, artillery, and squad defense courses farther north. The site area is covered with tall grasses and scattered brush thickets and sits on an elevation of about 1300 feet above mean sea level.

The site includes the remains of at least five possible structures (Fig. 11). Two of the structures are within the north edge of the swale: Feature_A, a rectangular concrete pad measuring 5 by 9 meters (16 by 30 feet), and Feature_B, a building depression with associated concrete steps and a 7 meter segment of concrete foundation. The long axis of each of these structures was east-west. Feature B appears very disturbed.

The remaining structures were set on the high ground north of the swale. Feature_C is a concrete foundation measuring 4.5 by 9 meters (15 by 30 feet). Its long axis runs north-south. Paralleling Feature C about 8 meters to the west is Feature_D, a rectangular concrete pad measuring 3.5 by 12 meters (about 11.5 by 39 feet). Between Features C and D, and in alignment with their north wall lines, is Feature_E, a section of concrete footing of unknown purpose. The last possible building site, Feature_F, is represented by two parallel linear depressions that run east-west. This feature is poorly defined and may result from something other than a building.

Various historic artifacts, including glass and ceramic sherds, were seen in the site area. None were collected.

Recommendations: As the remains of a historic homestead, this site may be eligible to the National Register. Additional archival research and informant interviews might help determine the former sequence of ownership, occupancy, and use of the site. At a minimum the immediate site area should be protected from future camp activities.

Site Number: #71

Site Type: Historic Homestead

Sample Unit: 28

Stratum: 4 (Level drainageway terrace)

Legal Description: SE-SE-NE 1/4 fr. Section 24 T132N-R30W
(Rail Prairie Township)

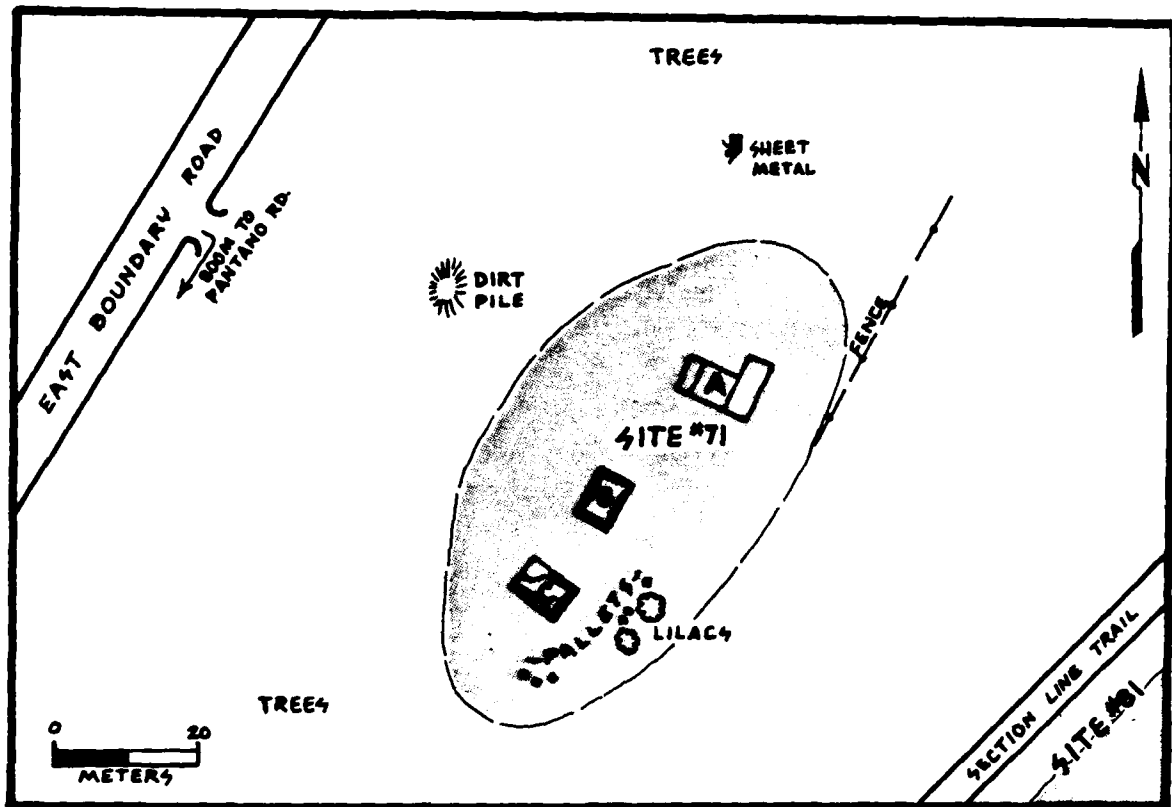


Figure 12. Sketch Map of Site #71, a historic homestead found near the mouth of "Frog Lake Creek" not far from the possible Stanchfield Lumber Camp (Site #17) and prehistoric Site #81. The area of the homestead is littered with old fence wire, sheet metal, and some old wooden pallets. Site features are described in the text.

USGS_Quad: Belle Prairie NW, Minnesota (1956). 7.5' Series.

Description: Site #71 (Field Number 86-14) is in the north half of the military reserve about 125 meters west of the Mississippi River and midway between East Boundary Road and the section line trail that parallels the river in this area (Appendix F-2). This site was observed by the author in the spring of 1986 while searching for Site #17, the possible remains of the old Stanchfield Lumber Camp (Birk 1986:31). To the east along the river is a prehistoric site (Site #81) described elsewhere in this report. Some disturbance from military activities is present. Site elevation is about 1170 feet above mean sea level.

The site includes three building features, a large dirt pile, and scattered historic debris (Fig. 12). Feature_A is an L-shaped concrete shed or garage foundation with a maximum wall length of 12 meters. A section of wire fence line is present east of this foundation. Features B and C, located southwest of Feature A, are building depressions with associated cement blocks. Feature_B is roughly 5.5 by 8 meters (18 by 26 feet) in outline and 1.5 meters deep. Feature_C is about 5.5 by 7.5 meters (18 by 24 feet) in outline and one meter deep.

The site area is scattered with various historic materials, some of which appear to be leftover from military maneuvers. Several wooden pallets, similar to boatdock sections, lie south and east of Feature E and a pile of sheet metal and cable was observed north of Feature A.

Recommendations: As the remains of a historic homestead, this site may be eligible to the National Register. Additional archival research and informant interviews might help determine the former sequence of ownership, occupancy, and use of the site. At a minimum the immediate site area should be protected from future camp activities.

Site_Number: #72

Site_Type: Historic Homestead

Sample_Unit: 30

Stratum: 3 (Gentle sloping moraine)

Legal_Description: NE-NW-NW 1/4 Section 34 T132N-R30W
(Rail Prairie Township)

USGS_Quad: Belle Prairie NW, Minnesota (1956). 7.5' Series.

Description: Site #72 (Field Number 86-15) is in the north half of the military reserve on the south side of Lake Alott

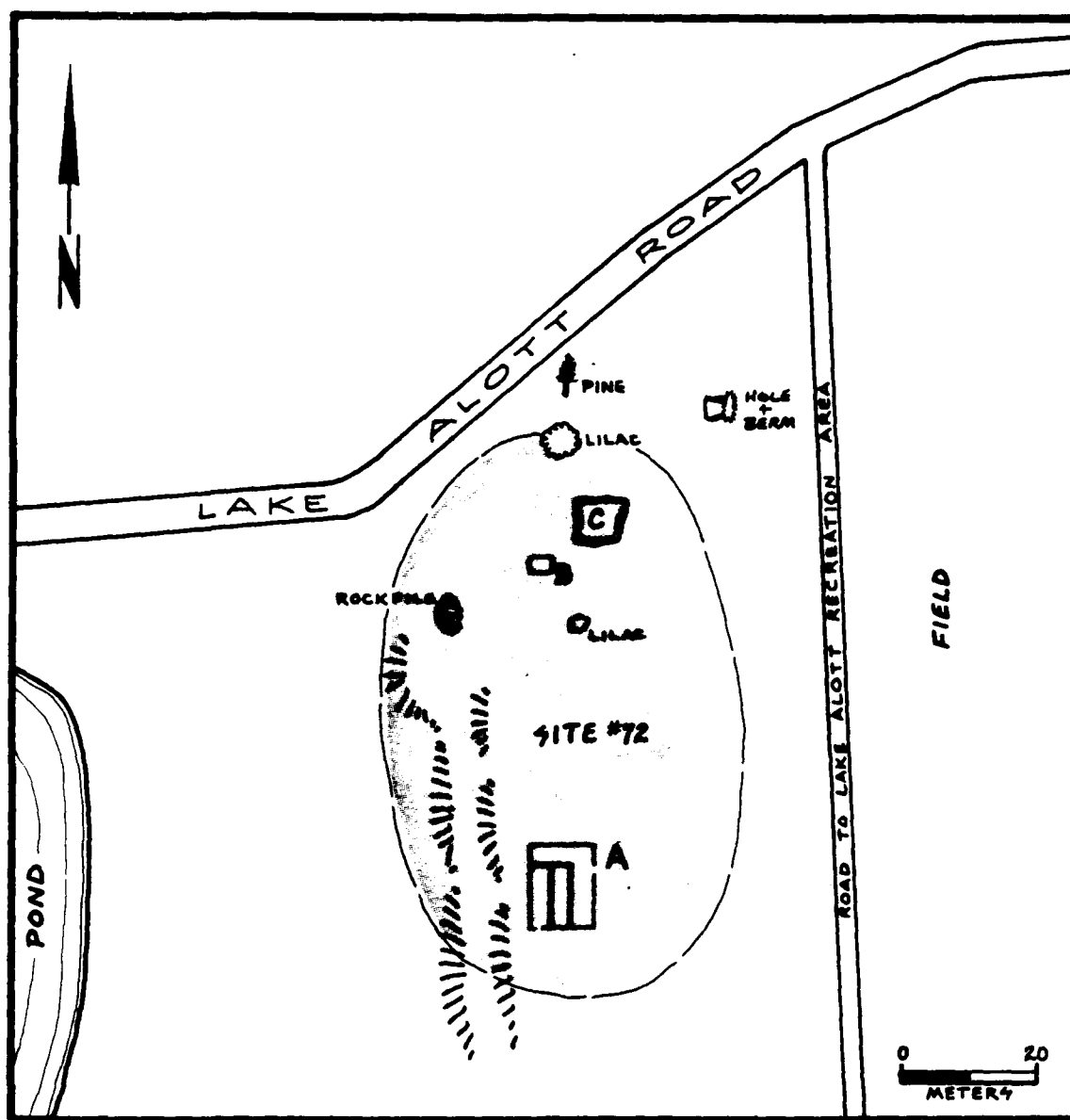


Figure 13. Sketch Map of Site #72, a historic farmstead in the hill country about 1/4 mile north of lake Allot. This site is on the edge of a terrace overlooking a marshy pond to the west. Site features are described in the text.

Road about 1/4 mile north of Lake Alott. The site lies east of a pond and west of the access road to the Lake Alott Recreation Area (Appendix F-2). On the east side of the access road is a field that probably once served as a cow pasture. The surface of this field slopes southward to Lake Alott and is very irregular and difficult to walk over. On the downslope to the lake a number of historic materials were observed in gopher mounds. These include sherds of green and clear glass and stoneware, metal scraps, and a large unidentified metal object. Site elevation is about 1420 feet above mean sea level.

The site includes three possible building features, a rock pile, and two groves of lilac (Fig. 13). Feature A, the remains of the southern-most structure, is a barn foundation measuring 9.2 by 12 meters (30 by 40 feet). Only part of the foundation interior is covered with a concrete floor. Feature B, a 2.2 by 3.5 meter rock foundation enclosing a one meter deep depression, sits about 40 meters north of Feature A. Feature C, located just northeast of Feature B, is a large, irregular one meter deep depression lacking visible foundation remains. This may represent the location of the former farm residence. Between Feature C and Lake Alott Road is a white pine and a large lilac bush. A pile of field stones lies southwest of the residential area on the edge of the slope overlooking the pond. Northeast of Feature C, about midway between the house depression and the lake access road, is a hole and berm that may result from some military exercise.

Recommendations: As the remains of a historic homestead, this site may be eligible to the National Register. Additional archival research and informant interviews might help determine the former sequence of ownership, occupancy, and use of the site. At a minimum the immediate site area should be protected from future camp activities.

Site Number: #73

Site Type: Historic Homestead

Sample Unit: 32

Stratum: 4 (Level outwash terrace)

Legal Description: Middle S 1/2-NW 1/4 Section 8 T132N-R29W
(Rail Prairie Township)

USGS Quad: Baxter, Minnesota (1954). 7.5' Series.

Description: Site #73 (Field Number 86-16) is in the north half of the military reserve in an area 600 meters west of the Mississippi River and 200 meters southeast of East Boundary Road (Appendix F-1). The site is on a level

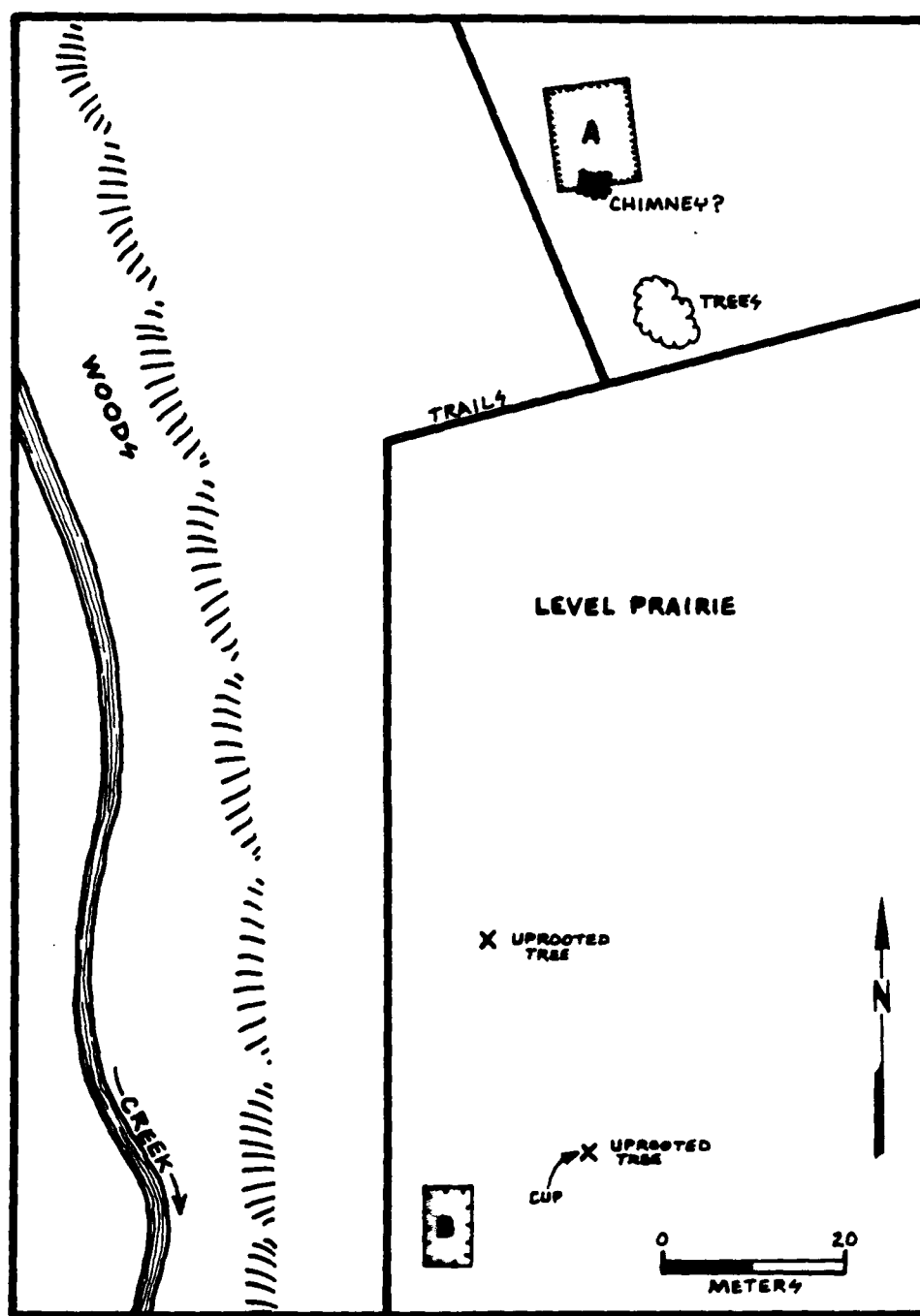


Figure 14. Sketch Map of Site #73, the remains of two historic buildings on the bank of an unnamed creek. These remains are about 600 meters west of the Mississippi River in the area of the old platted town of West Crow Wing (Birk 1986:42). Site features are described in the text.

terrace just west of a small unnamed creek and is separated from the river by a grassy field. Site elevation is about 1165 feet above mean sea level.

The site has two building features (Fig. 14). Feature A, the northern-most foundation, is outlined in stone and may have the remains of a collapsed chimney at its southern end. The rock foundation measures 9.5 by 12 meters (30 by 40 feet). A second building site (Feature B) is on the east side of a field road about 110 meters south of Feature A. Feature B is a rectangular depression measuring about 5 by 9 meters (16 by 30 feet) and about one meter deep with no other building indications. A broken teacup was observed at the base of an uprooted tree just east of this depression. No other artifacts were noted and none were collected.

Recommendations: As the remains of a historic homestead, this site may be eligible to the National Register. Additional archival research and informant interviews might help determine the former sequence of ownership, occupancy, and use of the site. At a minimum the immediate site area should be protected from future camp activities.

Site Number: #74

Site Type: Historic Homestead

Sample Unit: 35

Stratum: 1 (Steep sloped moraine)

Legal Description: SW-SW-SE-SW Section 23 T133N-R30W
(Rosing Township)

USGS Quad: Pillager, Minnesota (1954). 7.5' Series.

Description: Site #74 (Field Number 86-21) is in the north half of the military reserve on the north side of Pusan Road about 1/4 mile west of its intersection with Inchon Road (Appendix F-1). The site is in a pine grove on a hilltop at the west end of a long narrow field. The field and the site lie between Pusan Road and an east-west woods road that borders the north edge of the field. Site elevation is about 1320 feet above mean sea level.

Site #74 includes three building features, part of an old roadway, and some scattered rock piles, fencelines, and fruit trees (Fig. 15). Feature A is an L-shaped building depression set into the slope of a ravine at the southwest corner of the site. This irregular depression is 1.5 to 2 meters deep and is visible from Pusan Road.

Fifty meters east of Feature A is Feature B, a circular depression measuring about 3 meters in diameter by one meter

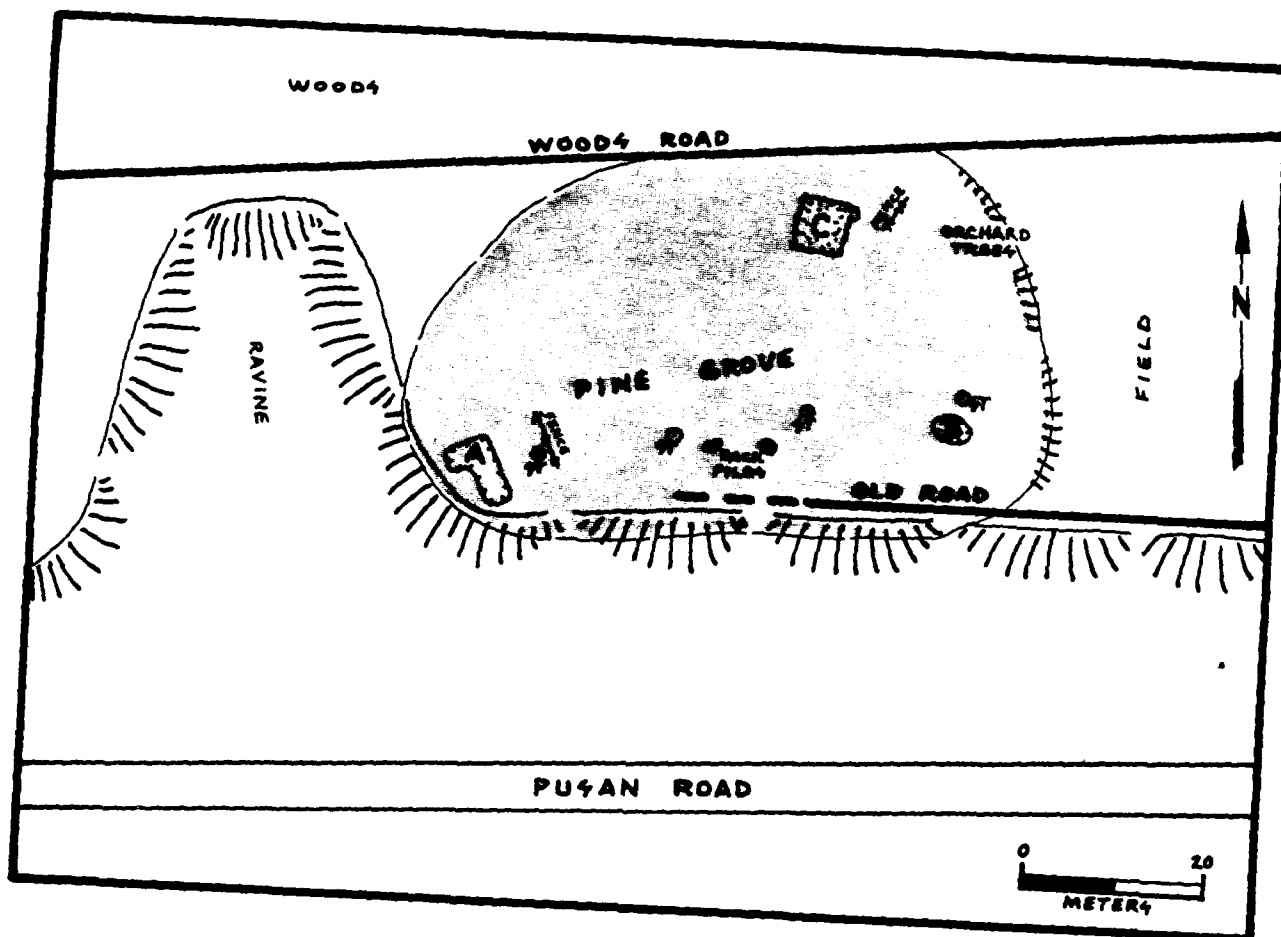


Figure 15. Sketch Map of Site #74, a historic homestead found in a forested area north of Pusan Road about 120 meters east of the "Mrs. Albert Schultz Grave" (Site #9). This map shows the location of several negative shovel tests (the open circles with central dots) dug across the site as part of the investigation of Sample Unit 35. The site features are described in the text.

deep. Between the depressions are two small rock piles of unknown purpose. An old roadway begins a few meters south of the rock piles and extends eastward towards the field.

Feature C is a building site on the south edge of the woods road about 20 meters northwest of Feature B. Feature C is 5 meters square and is partially outlined with cobblestones. In the area east of this feature are several orchard trees.

Old barbed wire fencing was noted in at least two areas of the site. Just east of Feature A some of the wire is embedded up to ten inches within the girth of a large oak tree. A transect of shovel tests, ran through the site area before the old homestead features were noticed, failed to produce artifacts. The presence of a gold-plated trinket in a shovel test about 45 meters east of the site (Appendix G) was a mystery until the nearby homestead site was found.

Recommendations: As the remains of a historic homestead, this site may be eligible to the National Register. Additional archival research and informant interviews might help determine the former sequence of ownership, occupancy, and use of the site. At a minimum the immediate site area should be protected from future camp activities.

SITES WITH BOTH PREHISTORIC AND HISTORIC COMPONENTS

Site Number: #75 (21M025) Site Type: Multi-component

Sample Unit: 16 Stratum: 4 (Level outwash terrace)

Legal Description: E 1/2-NE-SW 1/4 fr. Section 19 T131N-R29W
(Clough Township)

USGS Quad: Belle Prairie NW, Minnesota (1956). 7.5' Series.

Description: Site #75 (Field Number 86-7) is in the south half of the military reserve on the west bank of the Mississippi River (Appendix F-2). The site lies opposite the northwest end of Pipe Island, between the river and Cunningham Road, on a level terrace about three meters above the river (Fig. 16). Although the site area was recently cutover, a scatter of deciduous trees and shrubs are present. Numerous slashing piles now form shelters for ruffed grouse and other small animals. The soil is sandy with a light mixture of gravel. Site elevation is about 1140 feet above mean sea level.

Cunningham Road obscures the western limits of the site. A large gully that crosses the site from the road to the river

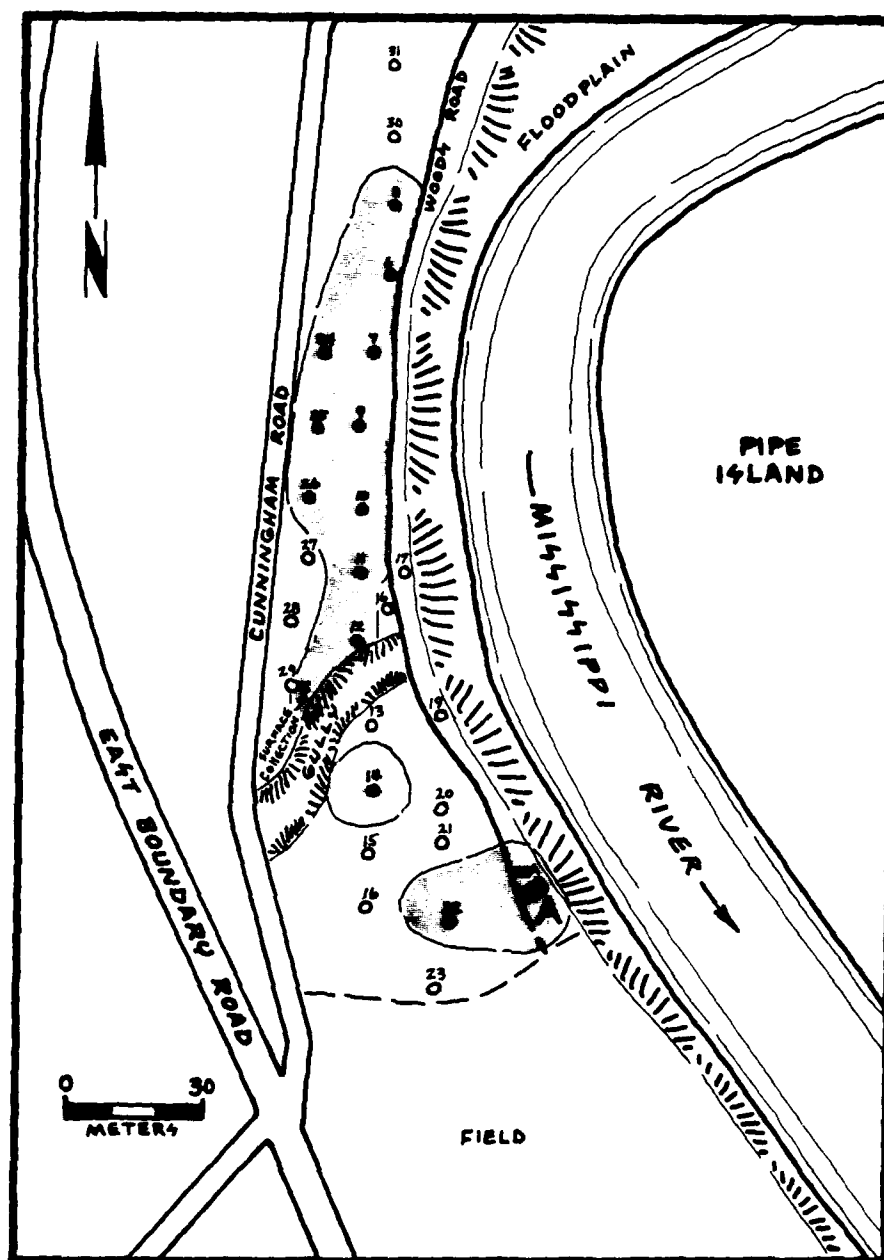


Figure 16. Sketch Map of Site #75 (21M025), a multicomponent site with both historic and prehistoric materials. Positive shovel tests (shown as large black dots) suggest the limits of the prehistoric site deposits. Feature A is a probable historic building site. The provenience of a white clay smoking pipe stem found near the north edge of the gully is shown as a "surface collection."

has also caused obvious damage to this resource. The southern margins of the site are near the north edge of the field at the intersection of East Boundary and Cunningham Roads. The northern limits of the site are opposite where the river extends to the northeast. A woods road that runs the length of the site along the edge of the river bank probably caused only minimal disturbance.

The field at the south end of the site was not shovel tested and a pedestrian survey in this area produced only a few pieces of calcined bone. The site's prehistoric component could extend into and beyond the field where it might be linked with Site #80, another site south of the field in the same sample unit and stratum. If so, any intervening deposits would likely be sparse and discontinuous (see discussion for Site #80 below). The field has seen heavy use as a trap shooting range.

The prehistoric component on the site is known primarily from shovel testing. Lithic debitage was recovered from 12 of 27 tests in the site area at depths ranging from the ground surface down to about 50cms. A single quartz flake was found on a gopher mound. The prehistoric deposits may be stratified and discontinuous. Debitage from the site includes quartz, quartzite, "Tongue River" silica, basalt, jasper, jaspelite, and Knife River flint (Appendix G). No ceramics were found.

The historic component includes a probable building site (Feature A) and a small sample of artifacts. Feature A appears as a banked rectangular depression on the edge of the river near the north end of the field. The depression is 3 by 5 meters (10 by 16 feet) with its long axis perpendicular to the river. A single shovel test (ST 23A) placed in the interior of the depression uncovered a cast iron stove part at a depth of 20cm. This artifact was replaced in its original position to insure its provenience during any future excavations. Other historic items found on the site include six mirror glass fragments from ST #9 about 105 meters north of Feature A, and a white clay smoking pipe stem fragment found on a gopher mound just north of the gully and about 10 meters east of Cunningham Road.

Recommendations: This area should be further tested to determine the site's age, content, structure, and potential for eligibility for the National Register. The site should also be off-limits for future camp activities and developments.

Site Number: #76 (21M026) Site Type: Multi-component

Sample Unit: 23 Stratum: 1 (Steep sloped moraine)

Legal Description: N 1/2-NE-NE 1/4 Section 22 T132N-R30W
(Rail Prairie Township)

USGS Quad: Belle Prairie NW, Minnesota (1956). 7.5' Series.

Description: Through a technical error, Site #76 (Field Number 86-11) incorporates a farmstead earlier inventoried as Site #24 (Fay 1985,2:40). Site #76 is in the north half of the reserve on the north side of Foadick Lake (Appendix F-2). The site is about 1/10 mile west of Pantano (Ledo) Road and less than 1/4 mile southwest of the Rail Prairie Town Hall Site (Fay 1985,2:34). The site lies in a field surrounded by a mixed pine-deciduous forest. The field is on a level upland about 1360 feet above mean sea level. It is bordered by a steep slope on its south edge that drops over 100 feet to Foadick Lake. In some areas the slope has a gradient of 60 degrees. The field edges have been used for camping. Several lightly-used trails run from the field into the outlying forest. One trail extends southward to the lake. There is also a field road or trail that circumscribes the clearing near its outer edge.

The prehistoric component was discovered when artifacts were found on gopher mounds in the south half of the field (Fig. 17). Finds include one chert biface fragment, two white quartz flakes, and a shell-tempered ceramic crumb (Appendix G). In a transect of ten shovel tests placed to join the various find spots, two tests were positive (that is, ST 3 and ST 4). Short crossing transects were then placed in the areas of the positive tests without results. Because the field had good gopher mound coverage no other transects were attempted. Based on available evidence, the prehistoric component seems to be a sparse and discontinuous scatter of materials confined to the plow zone in the south half of the field. The presence of shell-tempered ceramics suggests this component may date to the Late Prehistoric Period (A.D. 800-1700).

The historic component is represented by a homestead at the southeast end of the field (Fay's Site #24, see above). The homestead is mostly south of the road that borders the field and parts of it are actually on the upper margins of the slope overlooking Foadick Lake. A large lilac grove at the head of a draw separates the historic component into east and west loci (Fig. 18).

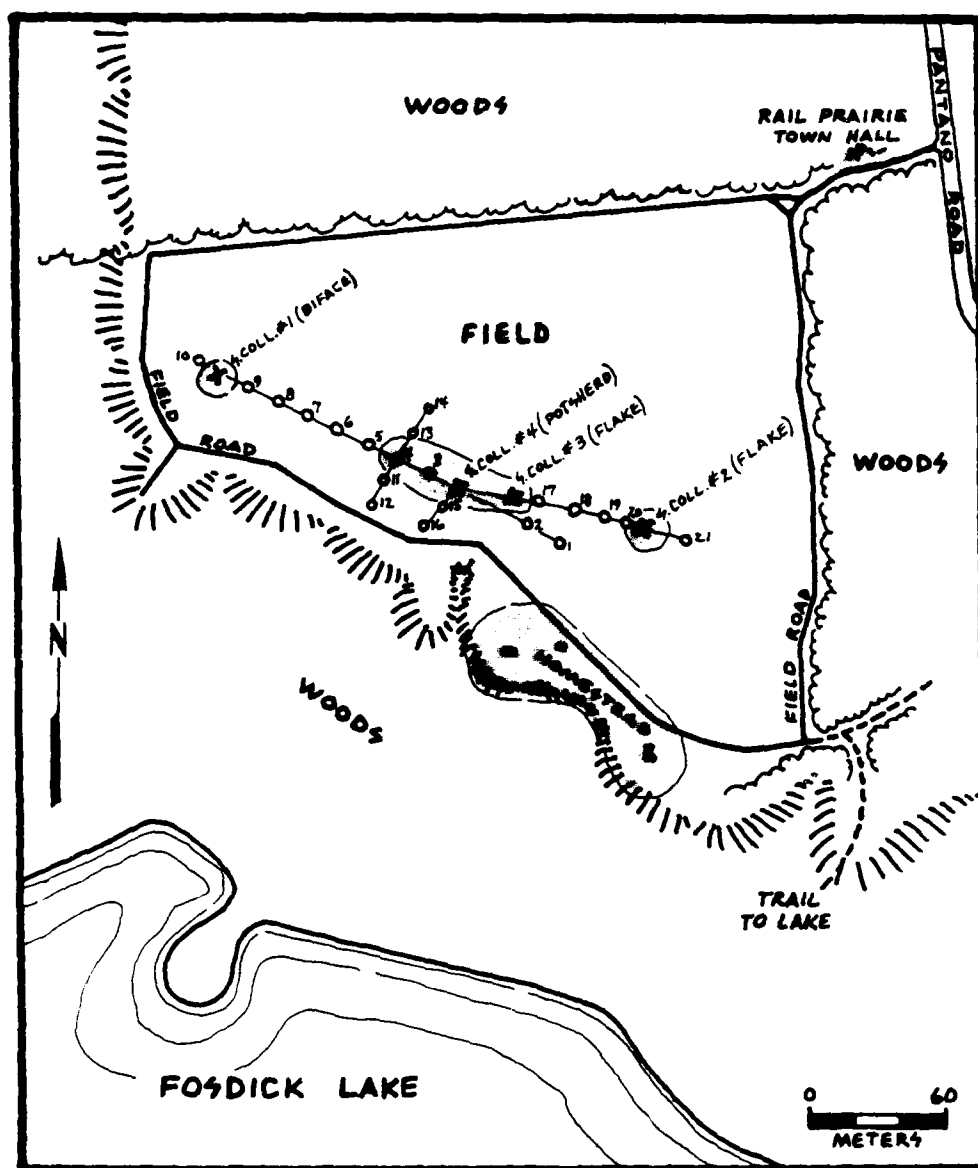


Figure 17. Sketch Map of Site #76 (21M026), a multicomponent site on the north side of Foadick Lake. This map shows the location of positive shovel tests (large black dots) and surface collected artifacts (X's) in the field north of the old homestead (see Fig. 18) and southwest of the Rail Prairie Town Hall. The homestead site was earlier inventoried as Site #24 (Fay 1985,2:40).

Figure 18. Sketch Map of the historic homestead area of Site #76 (21M026), on the sloping field edge overlooking the north shore of Foadick Lake. This historic component of Site #76 was earlier listed as Site #24 (Fay 1985,2:40). The homestead features are described in the text.

Feature A, a probable house foundation, is part of the eastern locus. This concrete foundation is irregular in outline with a maximum length just under 10 meters. The feature is obscured by dense prairie grass and may be slightly disturbed from military maneuvers. Northeast of Feature A, on the north side of the field road, are two large white pine, and some fruit trees. The area north of the trees appears to have been disturbed by a bulldozer.

Feature B, located in the western locus 34 meters northwest of Feature A, is a probable concrete garage foundation. Feature B is on the immediate south side of the field road and measures 4.4 by 7.3 meters (14 by 24 feet).

Feature C is a concrete barn foundation. It is about 15 meters southwest of Feature B and measures 4 by 10.5 meters (13 by 34 feet). The barn foundation was apparently cut into the slope so that the upper floor would be accessible to vehicles approaching from the north or uphill side. Such a design was common to many old barns where hay or farm equipment was stored in the upper loft.

Two stock tanks are present in the area of the barn site. One (Feature D) lies midway between the barn and garage foundations, and the other (Feature E) is about 5 meters southwest of the barn foundation on the downslope. The stock tanks are cement troughs. Feature D measures 2.7 by 3.2 meters and has an associated water pipe at its east end. Feature E measures 1 by 2 meters.

Feature F is a collapsed metal shed, about the size of a dog house. It is on the north side of the field road about 10 meters north of the garage foundation. Its purpose is unknown. No other features were found on the site and, surprisingly, no artifacts were found in associated gopher mounds.

The homestead is shown as an area of "ruins" on the Camp Ripley and Vicinity Military Map (Stock No. V772SCAMPRIPL) at coordinates 51-21150 meters north and 3-89400 meters east (Also see reference in: Fay 1985,2:40).

Discussion: The discovery of a ceramic-bearing prehistoric site in the rugged end moraine in this region is uncommon. Such a site in this terrain would normally be expected on a river, near a large body of water, or along a portage or travel route. Although the site is technically "near" water (within 1/4 mile) its elevation above Fosdick Lake makes it of questionable association.

Prehistoric ceramics might also be expected in the context of a maple sugar camp, but there are problems inherent to this interpretation. For example, many scholars believe that sugaring was not a part of the seasonal round of prehistoric peoples. Others question whether sugaring could have been done without access to large copper kettles of European manufacture. Archaeologist Margaret Holman (1986) suggests that prehistoric sugaring was only practiced in selected ecotones--such as the prairie-forest transition in central Minnesota--that were exploited through hunter-gatherer subsistence systems. Using environmental variables to find correlations between historic sugar bush sites and prehistoric sites, Holman suggests that sugar camps can be expected in areas where maple trees represent as little as 39% of the total forest cover. The original land survey records show that, before the logging era, the moraine in the area of Site #76 supported a mixed pine-deciduous forest. This forest included maple and other sap-rich hardwoods that could have formed an attractive sugar bush (Harschner 1930).

Holman speculates that prehistoric sugar camps might produce large quantities of fire-cracked rock and charcoal with low densities of artifacts consisting primarily of ceramics. These materials should be confined to relatively small areas where fire hearth and other features might show reuse or overlapping (Holman 1984:66, 70-71). These material parameters bear little resemblance to the artifacts found at Site #76 (Appendix G).

A more likely explanation for the placement of Site #76 may be the Frog Lake Creek Valley, which heads just over the ridge about 1/3 mile to the northeast (Appendix F-2). This broad creek valley provides a natural connection between the upland interior and the Mississippi to the east. When the line of the valley is projected two miles westward, it intersects with the north end of the level Scandia Valley outwash plain. Scandia Valley, in turn, provides easy access to Lake Alexander and the Fish Trap branch of the Long Prairie River.

There is other reason to suspect the presence of a trans-moraine traffic corridor at this location. In historic times, Indian guides informed French explorer Joseph Nicollet of an old portage route linking Lake Alexander and the Mississippi near its juncture with the Nokesippi (Fay 1985,2:41; Birk 1986:12). The fact that the guides were silent about other trails across the moraine may have several explanations: for example, (1) they may have had only a passing familiarity with this region; (2) they may have thought lesser-used alternate routes and winter trails

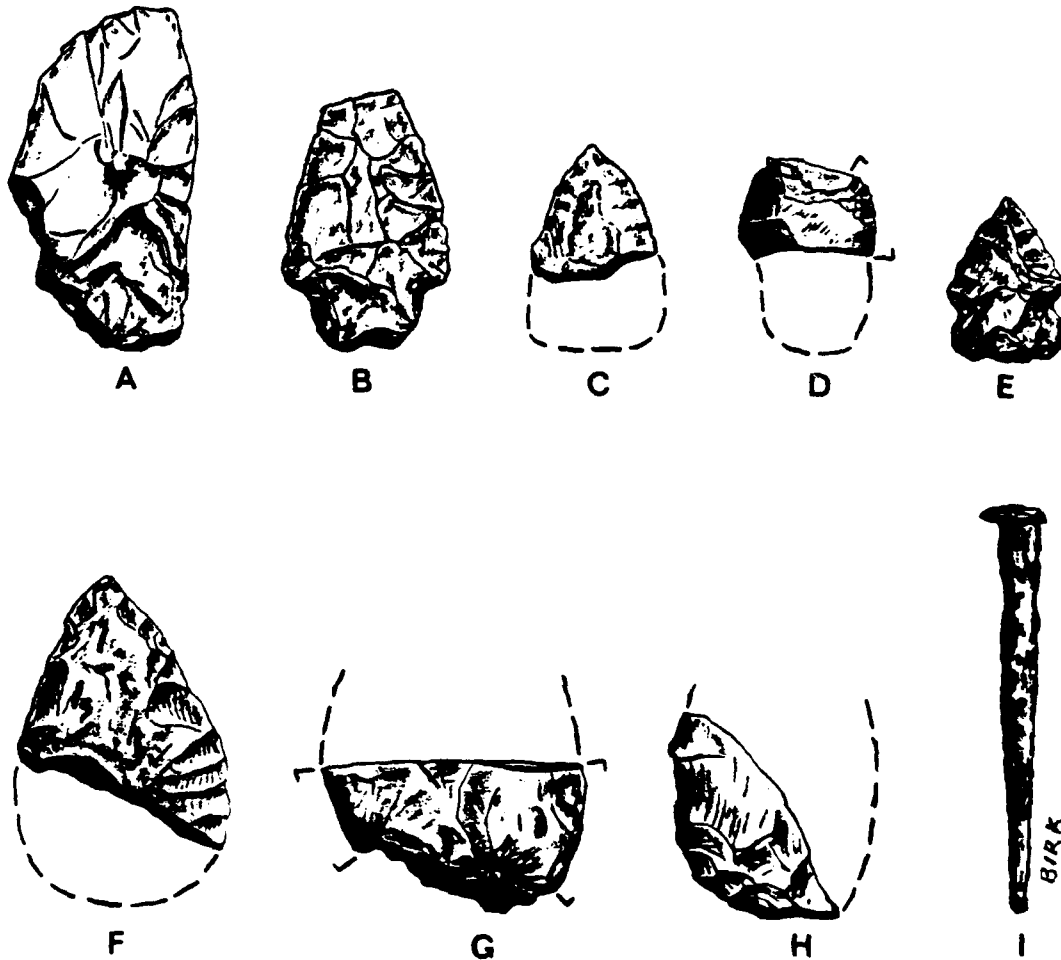


Figure 19. Selected Camp Ripley Artifacts. (A) Possible crude white quartz biface. Surface collection, western locus Site #79, Fig. 22; (B) Broken stemmed white quartz projectile point. Find Spot 4; (C) Broken white quartz projectile point. Surface collection, Site #81, Fig. 24; (D) Broken agate end scraper, ST138, Site #81; (E) Side-notched Knife River Flint projectile point, ST5, Site #77; (F) Oolitic chert biface fragment, ST15, Site #77; (G) Red quartz biface fragment, ST101, Site #82; (H) Green chert biface fragment, ST110, Site #82; (I) Hand wrought square nail, Surface collection, Site #63. Scale 1:1.

unworthy of mention; (3) the portage they revealed may have been the preferred summer route; or (4) perhaps through the years the Lake Alexander portage had many avenues and Nicollet's 1830's informants knew only of the one in common use at that time. There is little doubt that the Frog Lake Creek Valley would be best approached in the winter when its bordering floodplains were frozen.

One might also hold the sites near the mouth of Frog Lake Creek as evidence that the stream valley was used by prehistoric and historic groups. For example, Site #81 (discussed elsewhere, see below) and Site #17--the possible Stanchfield Logging Camp--may have served as base camps for the exploitation of the creek valley. Early records suggest that after 1780 Ojibway from the areas of Leech and Sandy Lakes annually entered the Crow Wing-Long Prairie Country to hunt big game (Warren 1957:266, 282). In the winter of 1805-06 Zebulon Pike observed that at least some of these hunters were on the west bank of the Mississippi below Crow Wing, perhaps in the area of Frog Lake Creek (Jackson 1966,1: 71, 99). More recently the creek valley may have been important to early loggers like Stanchfield who were seeking to tap the pine forests that covered the nearby moraine. Original land survey notes, in fact, mention a "Lumber Road" that apparently converged on "Stanchfield's" camp from the southwest (Birk 1986:31).

Recommendations: The field surrounding Site #76 should be left fallow and should be avoided by future military exercises and developments. The prehistoric component requires further testing to determine the site's age, content, extent, and potential for eligibility for the National Register.

Site Number: #77 (21M027) Site Type: Multi-component

Sample Unit: 33 Stratum: 4 (Level terrace & lake plain)

Legal Description: SW-SE-SW Section 22 T132N-R30W
(Clough Township)

USGS Quad: Belle Prairie NW, Minnesota (1956). 7.5' Series.

Description: Site #77 (Field Number 86-17) is in the south half of the military reserve in a level area of mixed outwash terrace and glacial lake beds about 1/4 mile north of Round Lake (Appendix F-2). The site is on the south side of Luzon Road on a raised terrace surrounded by swamp. The intersection of Luzon and Manila Roads lies about 1/5 mile

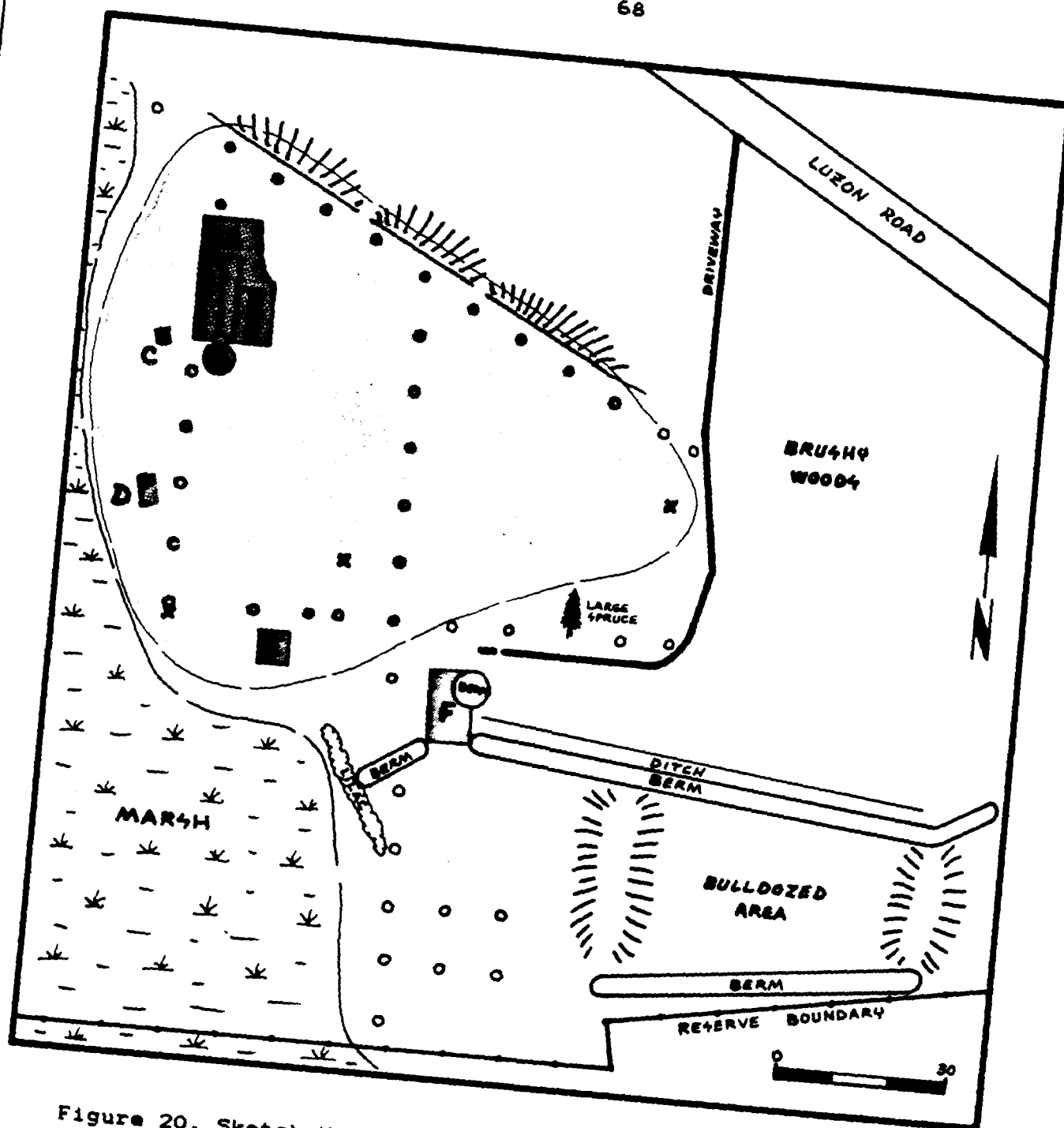


Figure 20. Sketch Map of Site #77 (21MO27), a multicomponent historic-prehistoric site located south of Luzon Road about 1/4 mile north of Round lake. Area of the prehistoric component (shown in gray) is suggested by surface collection (X's) and positive shovel tests (large black dots). Site features described in the text.

to the southeast. Site elevation is about 1210 feet above mean sea level.

The historic component includes several building features, fences, ditches, and berms. Feature A, a concrete barn foundation at the northwest corner of the site (Fig. 20), is visible from Luzon Road. This feature measures 13 by 20.5 meters (42 by 67 feet) and has manure gutters running across the poured concrete floor. The floor is heavily littered with nails and other modern historic debris indicating the barn was burned.

A circular silo foundation (Feature B) is on the south edge of the barn, and Feature C, a 1.4 meter deep concrete and wood-lined milk-cooler cellar, lies just to the west. Steps are present on the east entrance to the cellar.

Feature D is part of a wooden footing of a former structure located about 25 meters south of the milk cooler. Feature E, a possible concrete garage floor, lies 30 meters farther southeast. The latter feature is in alignment with the terminal section of driveway that enters the homestead area from the east.

Feature F is a cement block house foundation situated at the head of the driveway about 25 meters east of Feature E. This rectangular foundation measures 7.5 by 12.5 meters (24 by 40 feet) and has a 1.5 meter deep concrete basement floor. The area south and east of the house foundation has been heavily disturbed by earth-moving activities that produced several large berms and ditches.

The historic structures of Site #77 are shown on the Camp Ripley and Vicinity Military Map (Stock No. V772SCAMPRIPL) in the vicinity of coordinates 51-10125 meters north and 3-88125 meters east. Historic artifacts were observed over the entire homestead area and numerous historic items were recovered during shovel test operations (Appendix G).

The prehistoric component was discovered when a piece of quartz shatter was found on a gopher mound west of the house foundation. An east-west transect of shovel tests placed over this find produced more lithic artifacts (Fig. 20) including a small Knife River Flint projectile point (from ST 5; Fig. 19-E). Two more north-south transects and two east-west transects were then laid out to cover the high ground in the general area of the historic features. These tests produced more lithics including the broken tip of an oolitic chert biface (from ST 15; Fig. 19-F).

Additional surface finds extended the known limits of the prehistoric component which seems to conform in area to that of the farmstead. The western edge of the site terminates in the marsh. The northeast edge of the site is defined by the ditch of Luzon Road. Two shovel tests placed north of the road were negative. The southern end of the site was obscured by the earthmoving described in that area.

Prehistoric artifacts were found in shovel tests at a depth of 0-35cm where they were intermixed with large quantities of modern historic trash. The prehistoric component seems to be a shallow, sparse, and discontinuous scatter of lithic materials in an altered and partially destroyed site area later used as a farm and living area.

Recommendations: This site area should be avoided by future camp activities and developments. The prehistoric component should be tested to determine the site's condition and potential for eligibility for the National Register.

PREHISTORIC_SITES

Site_Number: #78 (21M028) **Site_Type:** Lithic scatter (?)

Sample_Unit: 8 **Stratum:** 1 (Rugged slope esker)

Legal_Description: SW-SE-NW 1/4 fr. Section 32 T132N-R32W
(Clough Township)

USGS_Quad: Belle Prairie, Minnesota (1956). 7.5' Series.

Description: Site #78 (Field Number 86-4) is in the south half of the military reserve on the top of an esker ridge about 120 meters west of the Mississippi. The site is just below the "Big Bend" where the river valley broadens to embrace a group of a dozen or so small islands (Appendix F-3). The site sits at a elevation of about 1200 feet above mean sea level and overlooks these islands from a vantage about 60 feet above the river. Although considerably blocked by the trees, the view across the river to the north is quite extensive.

The esker runs northwest-southeast and parallels the river just west of East Boundary Road. It is flanked by another esker to the southwest from which it is separated by a deep valley and a woods trail known as "Toul Road." In width, the esker varies from a narrow peaked crest to a broad, flat-topped plateau. The entire ridge is covered with a mixed pine-deciduous forest with an understory of brush.

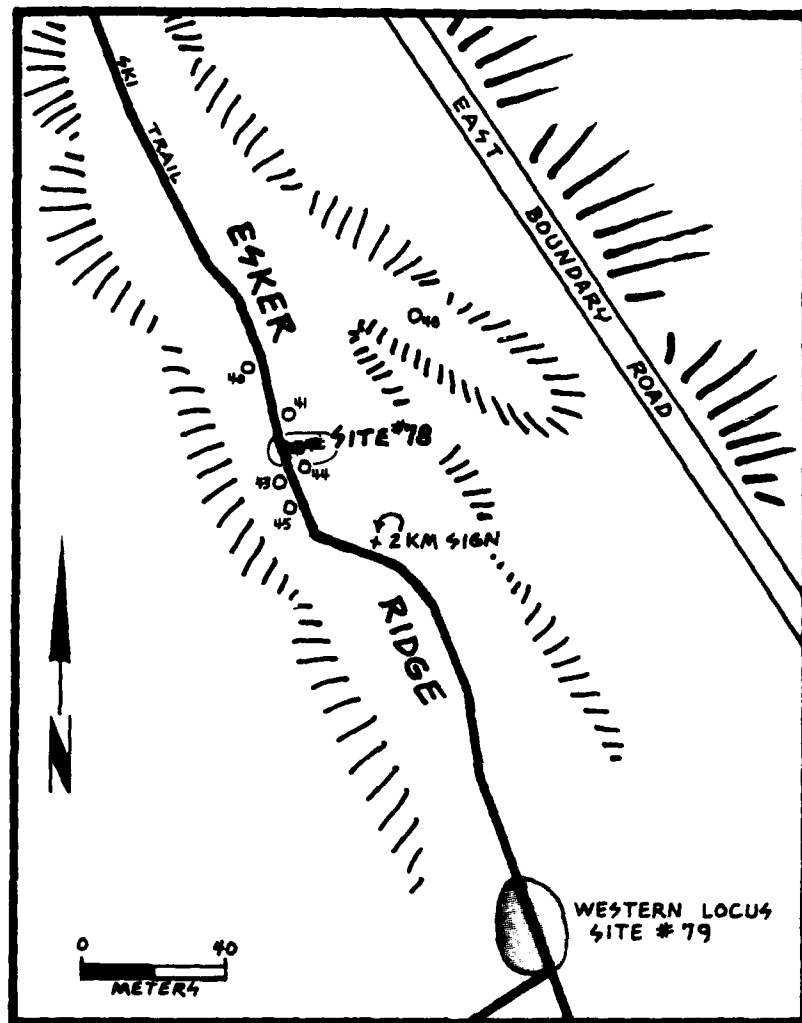


Figure 21. Sketch Map of Site #78 (21M028), a small lithic scatter defined by a single positive shovel test (ST42). Site #78 is on the esker ridge north of the Camp Ripley Cantonment. The site is on the east side of a ski trail just north of the 2 kilometer marker.

The forest has been partially logged, but grades from a predominantly deciduous stand on the northwest end of the esker to a beautiful stand of red pine on the southeast. The soil on this ridge is highly varied with pockets of very dense gravel, sand, and even saturated clay-like sediments encountered during shovel testing. Topsoil is thin and rarely exceeds 10cm. A cross country ski trail runs along the top of the esker for its entire length south of Fort Ripley Road.

The site was found in a single shovel test on the east side of the ski trail just northwest of the two kilometer trail marker (Fig. 21). This test, ST 42, produced nine pieces of white quartz and one piece of possible chert debitage. These materials were found between 0-25cm below which the test was terminated because of a large root (Appendix G).

Some surrounding shovel tests, dug in five meter intervals, were negative. Two pieces of possible fire-cracked rock were found at the base of an uprooted tree to the northeast.

Present evidence suggests this site may be a small, unstratified, single component, aceramic, limited activity area. If so, it is the kind of prehistoric site generally expected to be found in central Minnesota in rugged upland moraine areas away from water (Birk 1979:94; 1986:95).

Recommendations: This site should be tested to get a better definition and understanding of its cultural significance and its potential for eligibility for the National Register. Trail maintenance involving alteration of the ground surface should not be allowed in the area of the 2Km trail marker until this site investigation is completed.

Site Number: #79 (21M029) Site Type: Lithic scatter

Sample Unit: 8 Stratum: 1 (Rugged slope esker)

Legal Description: S 1/2-NE-SW 1/4 fr. Section 32 T131N-R29W
(Clough Township)

USGS Quad: Belle Prairie, Minnesota (1956). 7.5' Series.

Description: Site #79 (Field Number 86-5) is in the south half of the military reserve about 140 meters west of the Mississippi River and due west of the south end of the channel between Islands 35 and 37 (Appendix F-3). The site is 40 feet above the river in a broad, level area at the southeast end of the aforementioned esker (see site #78, above). Site elevation is about 1180 feet above mean sea

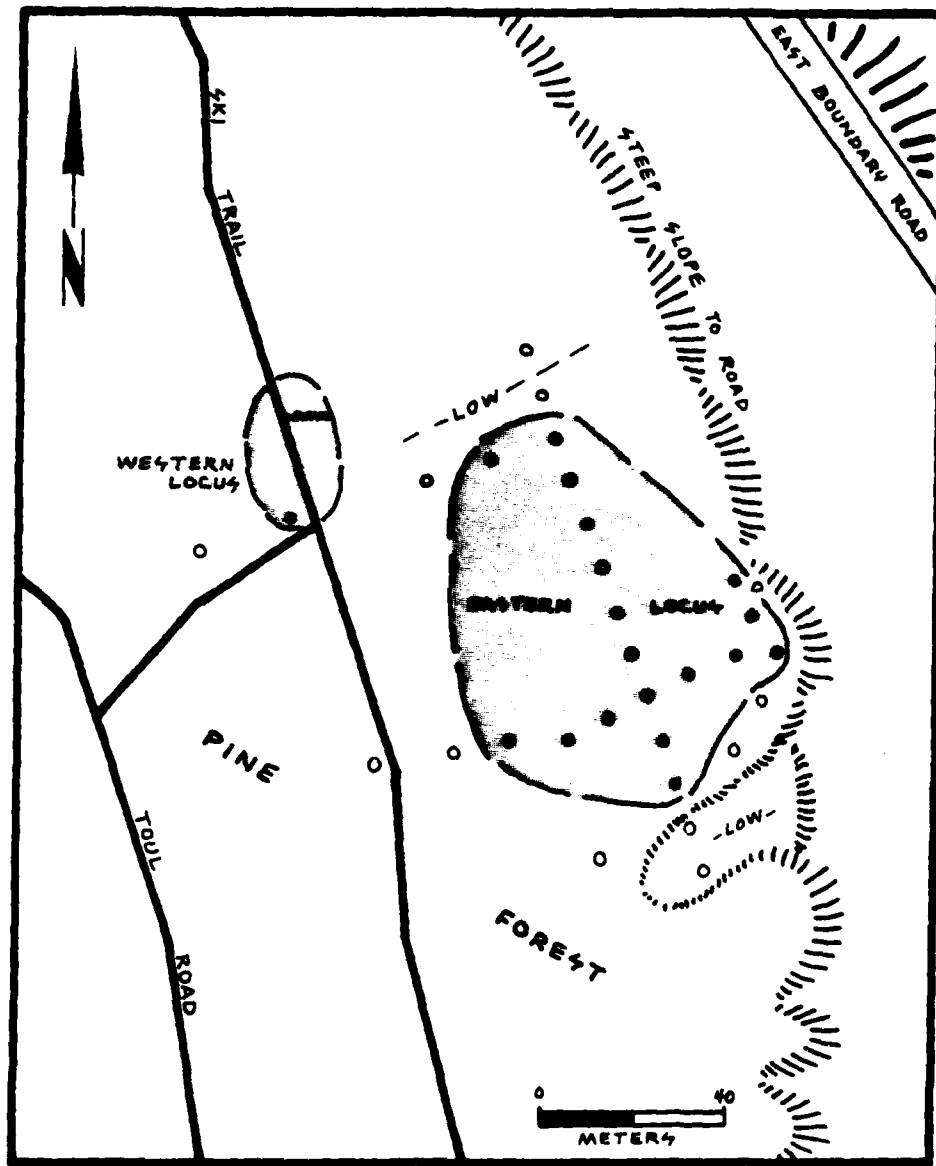


Figure 22. Sketch Map of Site #79 (21M029), on the south end of the large esker located north of the Camp Ripley Cantonment. The site area, as defined by positive shovel tests (large black dots) and a surface-collected possible white quartz biface (Fig. 19-A), is divided into eastern and western loci.

level. The site area supports a mature red pine forest, with mixed deciduous trees and scattered brush. The view of the river would be improved if the vegetation were reduced to more closely approximate conditions that might have existed during the Altithermal. The soil is generally sandy with moderate amounts of gravel. Topsoil development is sparse and seldom exceeds 10cm.

The general site area has been used for military purposes and is disturbed by a number of trails, roads, and pits. A cross country ski trail that cuts across part of the site is the same one mentioned in the description of Site #78.

The site has two main loci both of which are aceramic. The eastern locus sits on the edge of the terrace overlooking East Boundary Road and the Mississippi River (Fig. 22). This locus was discovered by shovel testing and found to be about 80 meters in diameter. Debitage is present in a wide range of types including: quartz, quartzite, jasper, agate, tongue river silica, chert, and chalcedony (Appendix G). Most of the debitage was recovered at a depth of 5-35cms, but some was found at depths approaching 50cm. One possible fire-cracked rock was noted, but no features were observed.

The western locus is cut by the ski trail about 30 meters northwest of the eastern locus (Fig. 22). The western locus is suggested by a possible quartz biface (Fig. 19-A) surface collected from the ski trail and a piece of white quartz debitage from an adjacent shovel test (ST 101). This locus could be temporally or functionally associated with the eastern locus and Site #78 which lies about 140 meters to the north along the ski trail.

The situation of this site places it in the suspected locale of Zebulon Pike's "Pine Camp" (Site #62), a 3-day stopping place used by Pike and his men while traveling up the Mississippi in mid-December 1805 (Birk 1986:90-91). Until better evidence is obtained, this area of red pines would be an excellent spot to place a marker commemorating Pike's adventure. Perhaps the marker could best be sited at the base of the slope in a wayside off of East Boundary Road.

Recommendations: This site is one of the densest and best preserved prehistoric site complexes presently known within the military reserve. The site should be tested to get a better definition of its content and structure, and a firmer understanding of its cultural significance and potential for eligibility for the National Register. The site area should be off-limits to future camp activities and developments.

Site Number: #80 (21M030) Site Type: Prehistoric campsite

Sample Unit: 16 Stratum: 4 (Level outwash terrace)

Legal Description: W 1/2-SW-SE 1/4 fr. Section 19 T131N-R29W
(Clough Township)

USGS Quad: Belle Prairie NW, Minnesota (1956). 7.5' Series.

Description: Site #80 (Field Number 86-8) is in the south half of the military reserve on the west bank of the Mississippi River. It is about 220 meters southeast of the juncture of Cunningham and East Boundary Roads and opposite the south end of Pipe Island (Appendix F-2). The site is on the second terrace in a triangular parcel between East Boundary Road and the floodplain. This parcel is bordered on the north by a field which has seen considerable use as a trap shooting range (Fig. 23). Site #75 lies in the woods on the north side of the field.

The floodplain east of the site is up to 80 meters wide and is partially covered with a stand of mature spruce trees. Attempted shovel testing on the floodplain was abandoned because of the high water and the "gooey" consistency of the sediments that form the floodplain.

The site area is 6 or 8 meters above the river and is covered with grass, dense brush, and a mixed pine-deciduous forest. Near the south end of the site is an 1898 Mississippi River Commission (MRC) marker and two large foxholes (Fig. 23). The MRC marker places the site at an elevation of 1165 feet above mean sea level. The soil on this upper terrace is sandy.

The triangular site-area parcel was surveyed with nine east-west shovel test transects spaced at 15 meter intervals. Two tests (ST 50 and ST 60) proved positive. The survey was intensified by placing additional tests within five meters of each positive test.

A locus of materials was found in four positive shovel tests in an area 10 meters north of the MRC marker (Fig. 23). Recoveries from this locus include: calcined bone, a fire-cracked rock fragment, a crude biface, and lithic debitage of tongue river silica, quartz, and quartzite (Appendix G). This southern locus is apparently confined to an area of about 10 by 25 meters with artifacts found at a depth of 0-45cms.

The single piece of white quartz debitage found in ST 50, about 40 meters north-northeast of the southern locus,

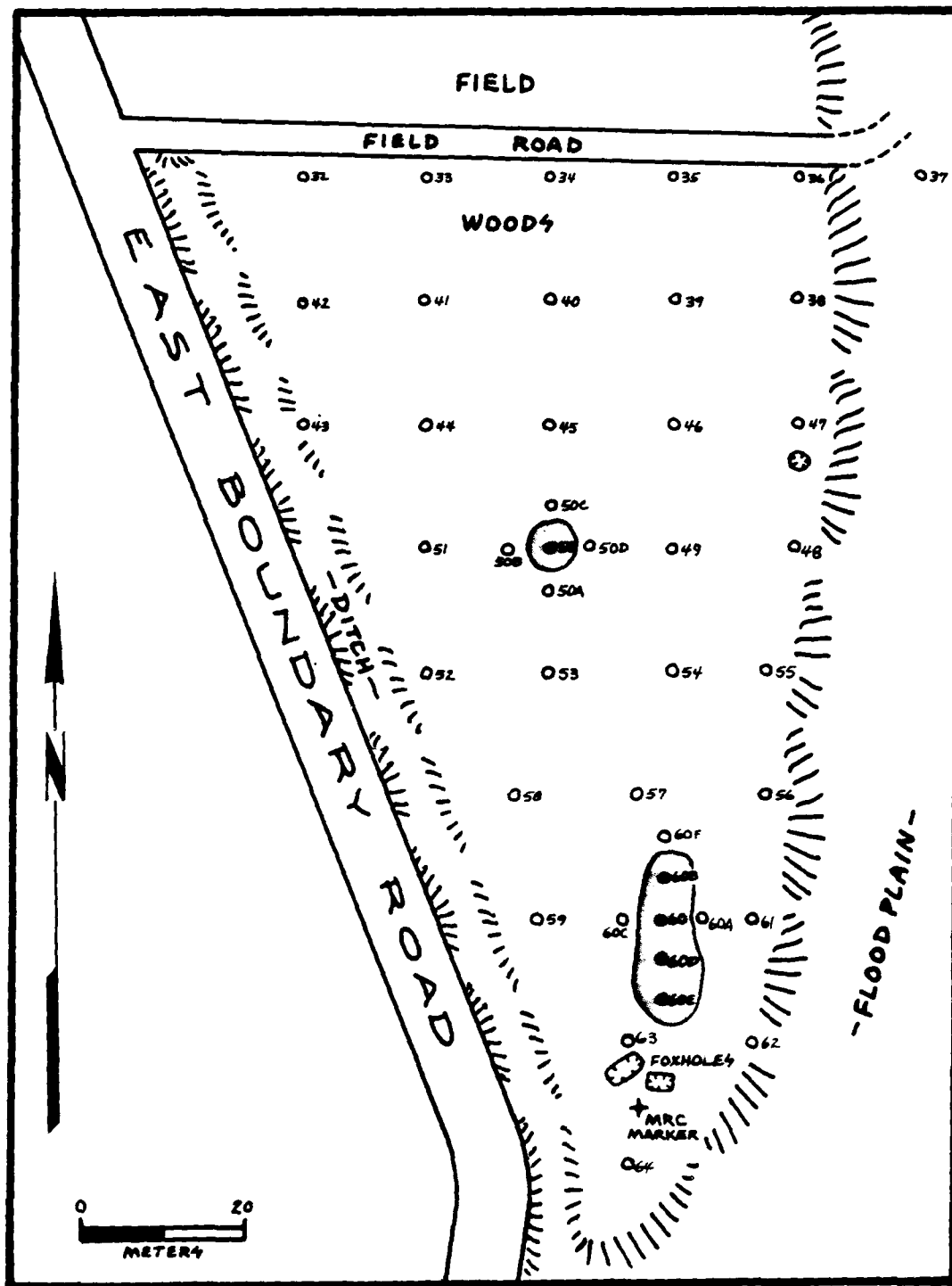


Figure 23. Sketch Map of Site #80 (21M030), a prehistoric campgrounds on the west bank of the Mississippi opposite the south end of Pipe Island. The limits of the discontinuous site deposits is suggested by positive shovel tests (shown as large black dots). The elevation of the Mississippi River Commission datum marker is 1155 feet above mean sea level.

stands alone as an apparent random recovery (Fig. 23). This isolated find could be seen as evidence that a sparse and discontinuous scatter of prehistoric materials is present on the second terrace of the Mississippi River on the entire west bank opposite Pipe Island (see discussion for Site #75 above). If so, this site complex might have cultural, temporal, or functional affiliations with the Minshaw Site (Site #5 or 21M023) located just 1/2 mile downstream (Birk 1986:76-80).

Recommendations: This site should be formally tested to determine its age, content, and cultural affiliation and potential for the National Register. The site area should be off-limits to future camp activities and developments.

Site Number: #81 (21M031) Site Type: Prehistoric campsite

Sample Unit: 28 Stratum: 4 (Level drainageway terrace)

Legal Description: S 1/2-SE-NE 1/4 and N 1/2-NE-SE 1/4
Section 24 T132N-R30W
(Rail Prairie Township)

USGS Quad: Belle Prairie NW, Minnesota (1956). 7.5' Series.

Description: Site #81 (Field Number 86-20) is in the north half of the military reserve on the west bank of the Mississippi River about 400 meters south of the possible Stanchfield Logging Camp (Site #17). The site is on a level terrace between the river's edge and the "section line" trail that parallels the river in this area (Appendix F-2). The south end of the site is near the south intersection of the "section line" trail and East Boundary Road. The north end is southeast of Site #71 (a historic homestead) and near the boundary line between sections 29 and 30 (Fig. 24). The site is crossed by a powerline that also bisects the area of Site #17 farther north. Site elevation is about 1160 feet above mean sea level.

The site is in a grassy opening. Along the river to the northeast is a thick stand of birch, poplar, elm and pine with an understory of thorny briars. To the southwest is a sparse deciduous forest and the mouth of Frog Lake Creek. Soil in the site area is sand with light gravel.

The site area was surveyed by a pedestrian walkover and three shovel test transects. The surface collection recovered 46 pieces of assorted debitage and one broken white quartz projectile point (Appendix G).

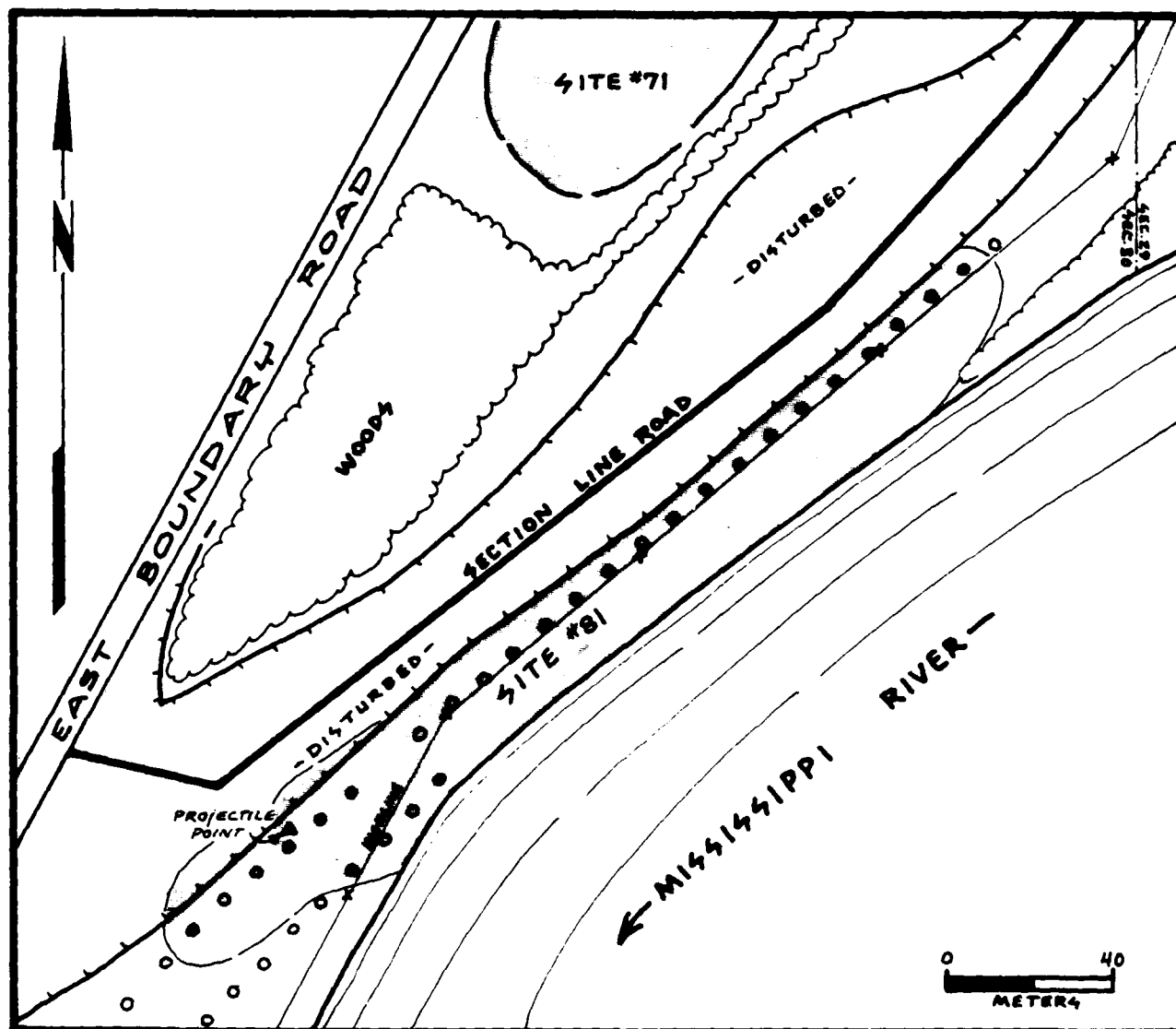


Figure 24. Sketch Map of Site #81 (21M031), a prehistoric site on the west bank of the Mississippi River just above the mouth of "Frog Lake Creek." The site area, as suggested by positive shovel tests (large black dots) is shown in gray. The north edge of the site has been obliterated by the construction of the "Section Line Road." Site #71 is an historic homestead discussed elsewhere (see Fig. 12, above). The projectile point found near the road cut at the west end of the site is illustrated as Fig. 19-C.

A transect of 16 shovel tests placed in both the wooded and disturbed areas between the "section line" trail and East Boundary Road proved negative. Much of this area had been altered by heavy equipment. The disturbance was visible in some shovel tests to depths of 25-30cms.

The site area between the "section line" trail and the river was surveyed with two transects of shovel tests: one a line of 27 tests that ran the length of the site, the other a paralleling transect of 10 tests at the southwest end of the site (Fig. 24). The long transect was abandoned at its northeast end because of disturbance similar to that noted in tests on the north side of the "section line" trail.

Of the 37 shovel tests placed in the site area, 18 proved to be positive. The tests produced an assortment of fire-cracked rock, debitage, bone, and grit-tempered ceramic crumbs. The lithic materials were predominantly white quartz and tongue river silica, with a lesser representation of chert, oolitic chert, quartzite, agate, and basalt. Most of the subsurface finds were made at a depth of 0-20cm with others running as deep as 50-60cm (Appendix G).

The site area is heavily disturbed by road construction, highline corridor maintenance, and military activities. This disturbance partly defines the present known limits of the site, especially along its north edge where it is cut by the ditch slope of the "section line" trail.

The placement of this site in relation to the Frog Lake Creek Valley is mentioned in the discussion of Site 86-11 elsewhere in this report.

Recommendations: This site should be tested to determine its age, content, cultural affiliation, and potential for the National Register. The site area should be avoided by future camp activities and developments.

Site Number: #82 (21M032) Site Type: Lithic scatter

Sample Unit: 36 Stratum: 4 (Level outwash terrace)

Legal Description: E 1/2-NE 1/4 fr. Section 5 T132N-R29W
(Rail Prairie Township)

USGS Quad: Baxter, Minnesota (1954). 7.5' Series.

Description: Site #82 (Field Number 86-19) is in the north half of the military reserve on the west (or south) bank of the Crow Wing River about 1/2 mile upstream from its

confluence with the Mississippi (Appendix F-1). The site lies along the edge of a 25 to 35 foot high terrace between the river and East Boundary Road just north of the old Prosser Farm (Site #2). The southern part of the site is within the limits of the papertown of "Crow Wing City" (Birk 1986:20, 44).

The site area is covered with a mixed pine-deciduous forest with an understory of scattered brush, poison ivy, and tree falls. Site elevation is 1170 to 1180 feet above mean sea level. The soil is sand with a low to moderate density of small gravel. Topsoil development is sparse and ranges between 8 to 12cm in depth. Drainage is not a problem.

The site area consists of two major loci separated by an unnamed creek valley that drains a large marshy plain lying to the west. Near its mouth, in the area of the site, the creek meanders through a deep ravine that is visible from East Boundary Road.

The northern site locus extends at least 150 meters north of the creek valley to beyond where the Crow Wing River angles to the northeast. The site area is defined by an elevated triangular terrace remnant bordered by a narrow river floodplain, the creek valley, and the ditch cut of East Boundary Road (Fig. 25).

This locus was found by shovel testing. A series of positive tests suggests that the northern locus is an aceramic lithic scatter with possible associated fire-hearth features (represented by a small sample of fire-cracked rock). Debitage from this locus is primarily white quartz intermixed with some chert, oolitic chert, and tongue river silica. Beyond a cobble hammerstone, no identifiable tools were found (Appendix G).

The southern site locus lies between the river and East Boundary Road and extends for 1/4 mile southward from the creek valley (Fig. 26). At the south end of the locus, at the north edge of a small field, a trail cuts down the riverbank to the floodplain fields opposite Crow Wing Island (Birk 1986:47). This trail may be a part of Site #16, the Crow Wing Island Ford and Ferry Crossing (Fay 1985,2: 30).

About 280 meters south of the creek and 690 meters north of the Chorwan Road intersection a woods road leaves East Boundary Road and runs directly towards the river. Near the edge of the high terrace overlooking the river this trail intersects or "T's" with another trail. The second trail parallels the edge of the high terrace for the entire length of the southern locus. North of the "T," the terrace is

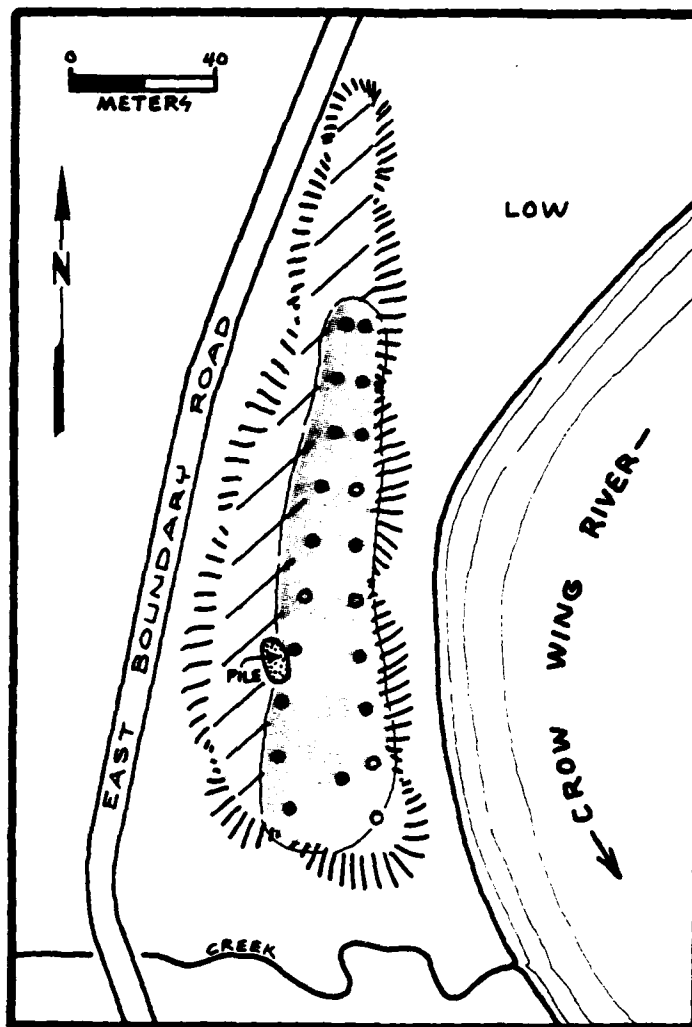


Figure 25. Sketch Map of Northern Locus of Site #82 (21M032), part of a prehistoric site complex on the west bank of the Crow Wing River just upstream from Crow Wing Island. The area of this site locus, as shown in gray, is suggested by a number of positive shovel tests (large black dots).

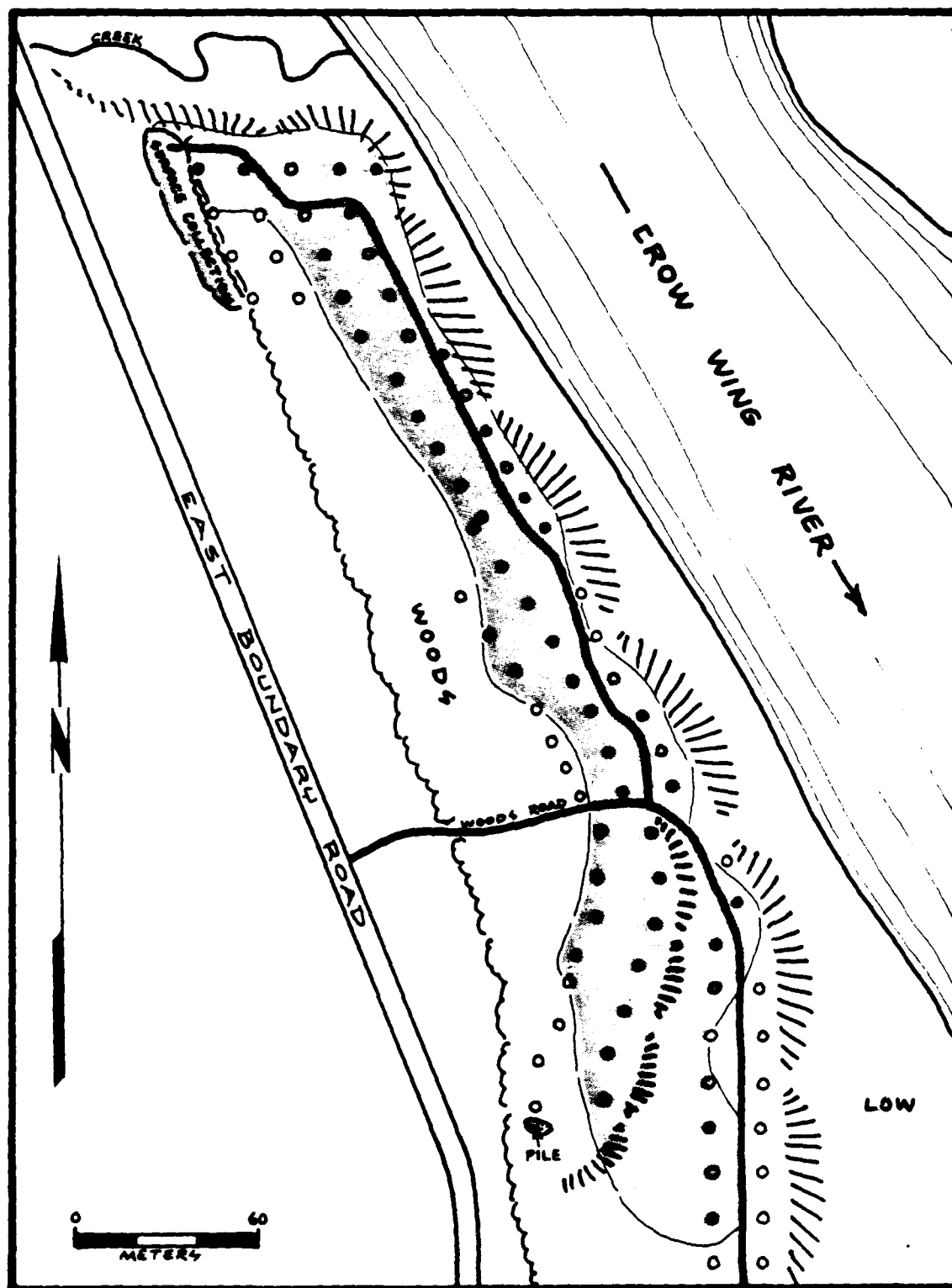


Figure 26. Sketch Map of Southern Locus of Site #82 (21M032), part of a prehistoric site complex on the west bank of the Crow Wing River just upstream from Crow Wing Island. The area of this site locus, as shown in gray, is suggested by a number of positive shovel tests (large black dots).

quite level, but to the south the elevation drops and the terrace is stepped. A narrow floodplain borders the Crow Wing River at the foot of the high terrace.

Like the northern locus, the southern locus was found by shovel testing. Surface collecting was confined to the east ditch cut of East Boundary Road just south of the creek valley (Fig. 26). Shovel testing suggests the southern locus is a sparse, discontinuous, aceramic lithic scatter generally confined to a depth of 0-30cm. Most positive tests produced only a single piece of debitage, but some contained a much higher density of materials (Appendix G). Debitage from the southern locus is an assortment of quartz, jasper, basalt, agate, chert, oolitic chert, and tongue river silica. Fire-cracked rock, though expected, was not found. Identifiable tools consist of only two broken biface fragments (Figs. 19-G and 19-H).

Recommendations: Both site loci should be tested to determine the site's age, content, cultural affiliation, and potential for the National Register. The site area should be avoided by future military exercises and developments.

LITHIC_FIND_SPOTS

Eleven isolated lithic find spots were recorded during the Phase I sampling survey (Table 5). Of these, three were found to be associated with larger site deposits and were subsumed in the site descriptions given above. The nature of each "find spot" recovery is also listed in Appendix G along with additional information about the provenience and method of recovery.

RECORDS_CHECK

In the Morrison County file at the Anthropology Department, University of Minnesota, Minneapolis is a letter written in 1973 by Daniel D. Imholte, then a University student active in the Reserve Officer Training Corps (ROTC). While attending a Field Training Exercise (FTX) at Camp Ripley Imholte noticed some "dirt" mounds in his campsite area that he thought looked "as if they were machine made for training purposes." During another FTX he reported having

the fortunate luck of finding an Indian arrowhead on the road next to these mounds. Also in talking with a man from the Military Reservation, I learned that our campsite was once an old Indian campground (Imholte 1973).

Table 5. Lithic Find Spots Recorded During the Camp Ripley Survey.

| Find Spot Number | Sample Unit | Landform Stratum | Artifact | Comments |
|------------------|--|------------------|-----------|---|
| 1 | 3 | 3 | debitage? | Possible "tank shatter" found in tank tracks on ridge about 300 meters NW of Site #65 in middle of SW-NW Section 22 T131N-R30W. |
| 2 | 3 | 3 | debitage? | Found at base of a rise about 180 meters NNW of Site #65 in the W 1/2-SE-NW Section 22 T131N-R30W. |
| 3 | 8 | 1 | flake | Found on NW end of esker about 180 meters west of the intersection of Camp Ripley and E. Boundary Roads (NE-NE Section 31 T131N-R29W). |
| 4 | 12 | 3 | proj pt. | Found lying in Bataan Road about 100 meters north of where that road tees in the NW Section 16 T131N-R30W. Illustrated in Fig. __B. ST"A" in a field 5.5 meters to the east revealed that the area was contaminated by a surface layer of fill from some unknown source. A single flake was found in this layer in ST"A". |
| 5 | 13 | 1 | flake | Found in ST47 in "Area C" of Sample Unit 13 on south end of high rise near edge of moraine in the NE-NE Section 12 T131N-R30W. |
| 6 | 14 | 4 | flake | Found near west edge of field, 250 meters north of Prentice Pond, in the SE-SW-SW Section 13 T131N-R30W. |
| 7 | ----- (Later recognized as part of Site #81) ----- | | | |
| 8 | ----- (Later recognized as part of Site #81) ----- | | | |
| 9 | ----- (Later recognized as part of Site #77) ----- | | | |
| 10 | 34 | 1 | debitage | Found in ST3 near N end of high ridge on the edge of the moraine in the W 1/2-SW-NE Section 33 T133N-R30W. |
| 11 | 34 | 1 | flake | Found in ST17 near fence on high ridge on the edge of the moraine in the SE-SE-NW Section 33 T133N-R30W. |

LANDFORM STRATA KEY: 1 = Rugged; 2 = Moderate Slopes; 3 = Gentle to Rolling; 4 = Level

Iaholte went on to report the "gradual destruction of these mounds from Tanks, APCs [Armored Personnel Carriers], and other Military vehicles." Attached to Iaholte's letter is a map showing the FTX campsite in a field in the middle of the N 1/2-NE 1/4 Section 6, T130N-R29W. The field is about one mile northwest of the cantonment and about 300 meters southwest of the intersection of Argonne Road and Fort Ripley Road. According to the Belle Prairie USGS Quadrangle the field has a maximum elevation of 1218 feet above sea level (Appendix F-3). The "mounds" are at the south end of the field. This reference was not found until after the field survey was completed so this information was not field-checked.

INFORMANT INTERVIEWS

Several persons were interviewed during the course of the survey to find out what they know about archaeological sites in the reserve. The information they provided strengthens our understanding of the distribution of cultural resources in this region.

1. Informant Alvin "Alvie" Hines, a former DNR employee at Crow Wing State Park, was interviewed in person to learn more about Site #1 that he first reported to the author in 1972 (Birk 1986:76-77; 101). Alvie had warm memories of the old family farmstead in the SW-NW-NE Section 33 T133N-R30W where he lived with his father (Ray Hines) and family from 1934 to 1941. During that time he picked up some arrowheads in the fields (now partially overgrown with jack pine) on the near level terrain in the NW-NE Section 33. As indicated on the Pillager, MN 1954 USGS map (Appendix F-1), that area is that part of the quarter-quarter section that flanks a northeast-southwest trail below the 1240-foot contour.

Southeast of the Hines' farmstead is a valley cut up into the moraine. This valley lies in the middle of the SW-NE Section 33 between two high ridges. The more prominent west ridge was called "Pike's Peak." At the south end of "Pike's Peak" a side valley cuts behind the ridge to the west. At the mouth of this side valley, on an old cow path, Hines said he picked up a couple of arrowheads. Today part of this area is heavily disturbed by erosion and bulldozing.

About 1/5 mile east-northeast of the latter area is a small spring-fed pothole nestled in the hills. On the south side of this pothole at its southwest corner is a small southward-projecting valley or swale in which Hines also found an arrowhead or two. This is the area of the so-

called "spring that never freezes" reported earlier (Fay 1985, 2:5; Birk 1986:76). This area--Sample Unit 37--was shovel tested with negative results (Table 4; Appendix F-1).

On the north slope of the moraine, about 1/4 mile due north of the pothole, is the site of a root cellar that Alvie thought was "old" when he was a child. This feature was not explored during the present survey.

Alvie described the Section 33 arrowheads as being about 1 to 1-1/2 inches long with basal stems or corner notches. He emphasized that his finds were scattered and isolated and did not seem to concentrate in any one place. He doesn't know what ever became of his finds. He had no knowledge of other sites or mounds in the Pillager area.

2. Informant Clarence Pierzina is a 73 year old retired DNR and Camp Ripley employee who spent many years of his life in and around the camp. He currently lives on Country Road 13 one mile west-southwest of the main gate in the SW-SW-NW Section 17 T130N-R29W (Appendix F-3). Pierzina has had two heart attacks which cause him to slur his words and lose his train of thought. His was a challenging interview but well worth the time. Among the topics of conversation:

Ferry Crossing. Site #32 (Fay 1985,2:49). When the old Camp Ripley bridge north of the mouth of the Nokasippi washed out, it was replaced by a ferry. According to Pierzina the ferry-tender Gene Abel and his wife lived in a "shack" on the west side of the Mississippi about 1 1/2 blocks west of the ferry landing or bridge. The ferry was run by a cable attached to an old Model A engine.

Prosser Farm. Site #2 (Fay 1985,2:7). Pierzina produced a copy of a 15 January 1965 Training Facilities Map of the Camp that shows an emergency landing strip on Prosser's old fields in Sections 5 and 8, T132N-R29W. "Airstrip Number 3" occupies the level alluvial terrace and dog-legs to parallel the west bank of the Mississippi in this area. A military trashpit ("Trash Pit #6") is shown on the map at the point of the dog-leg, somewhere in the SE 1/4 of Section 5.

Prehistoric Sites. Pierzina reported finding arrowheads in a hilly field on the south side of "Tamarack Lake Creek" in the S 1/2-NW Section 7 T132N-R29W (Appendix F-1). This creek valley in this area presents a beautiful view with numerous signs of deer suggesting an area with significant potential for sites. Unfortunately much of the area described by Pierzina has recently been bulldozed and is permanently "off limits" for military purposes. Some time

was spent walking the field on the south side of the road at this location (Sample Unit 40) without results.

Pierzina recalled finding a biface made of Knife River Flint in a field about 1/2 mile to the southeast of the creek site by Anzio Road. His description of the area of this find was very vague and was only learned after pressing the subject for sometime. At one point he said that he had found several arrowheads in that general area in fields and down along the Mississippi River.

Pierzina has a collection of artifacts that includes about 50 projectile points found in the Camp Ripley area. These are predominantly white quartz with some examples of Tongue River Silica, Knife River Flint, and grey chert. The variety of forms is limited.

Pierzina reports finding numerous points on the high ground just east of his house in the E 1/2-SW-NW Section 17. Other isolated finds have been made in his garden and in the field just north of his house.

Pierzina owns three 40 acre parcels on the north side of Highway 115 in Section 7 T130N-R29W just west of the cantonment area (Appendix F-3). Two of these parcels abut a swampy pothole that he refers to as "Mud Lake." This pothole, located just west of the center of the section, is not named on any maps. Pierzina reports finding several arrowheads, lots of "stone chips," and some Indian pottery in the fields on the high ground on the south and east sides of the small pond. This area is outside of the reserve and was not field checked.

3. Informant Bernard Fashingbauer, a former DNR Game Biologist, seasonally employed Clarence Pierzina while studying whitetail deer populations in the reserve between 1959 and 1965. Fashingbauer is now Head of the Science Museum of Minnesota Nature Center. Fashingbauer remembers picking up several arrowheads in the reserve and thought he might have entered his discoveries in some notebooks he kept. When pressed for details, Fashingbauer recalled finding mostly white quartz and chalcedony projectile points. Most of his finds, he thought, were made along the Mississippi in areas with terraces six to eight feet above the river that had been cut by roads or erosion.

4. Tim Zimmerman and Bob Prozinski, who have a contract to cut trees in the reserve, reported Indian mounds in an area they cut north of Pantano Road about one half mile from East Boundary Road. They also mentioned a large mound near a west access gate to the camp. The Pantano Road "mounds"

turned out to be natural features, and the large west gate mound is a glacial kame that was once erroneously given a state site number (Birk 1986:11).

5. Major Nissen, of the Camp staff, indicated that an "old fort" might be in the area on the north side of Foadick Lake. This area was later surveyed as Sample Unit 23. While no "old fort" was found, the investigation did reveal an old farmstead and scatter of prehistoric materials (Site #76) in a field about 250 meters southwest of the old Rail Prairie Town Hall (Site #20). The ruins of the town hall have been used for military games and may now appear to some as the remains of an "old fort."

5. CONCLUSIONS AND RECOMMENDATIONS

The IMA sampling survey assembled important new information regarding archaeological sites, site distributions, and site-environment relationships with the Camp Ripley reserve. This chapter reviews those findings, addresses other goals of the sampling survey, and makes recommendations for further work.

The Survey in Review

The physical environment of the Mississippi Headwaters is composed of a dynamic assortment of landforms and waterways. Seasonal and long-term changes in this environment have offered many opportunities for human settlement and land use. The diverse sequence of man-land relationships within this region over the past 8,000 to 10,000 years is reflected in the archaeological record. The Phase I survey was designed to find and assess a sampling of the sites and materials that make up this record within the military reserve.

Other goals of the survey were to: (1) evaluate survey conditions, (2) determine appropriate survey methods and techniques, (3) identify survey problems, and (4) evaluate past and ongoing disturbances.

The survey was performed by partitioning the reserve into five zones based on the criteria of elevation, slope, and drainage. The five landform strata thus defined include areas of rugged, moderately sloped, gently rolling, and level terrain, and wet marsh. These strata were numbered Stratum 1 through Stratum 5 respectively (Table 2). Only upland areas in Stratum 1 through Stratum 4 were surveyed (Table 3). Stratum 5 marshes and other wetlands were not examined. It should be noted that these strata differ from those numbered "Landform Areas" earlier suggested by Birk (1986:97-99).

The survey was conducted in irregular "sample units" ranging in size from about 2 to 160 acres (Appendix E). Sample units were generally chosen on the basis of accessibility, type and density of plant cover, and location within each stratum. Only a few of the sample units were placed in areas where sites were known.

The survey included surface reconnaissance and shovel testing. Shovel tests were dug at 15 meter intervals. When using multiple shovel test transects, the interval between transects also approximated 15 meters. All shovel tests

Table 6. List of Historic Sites by Landform Stratum and Relation to Water. Included are sites recorded during the Camp Ripley Sampling Survey, and those earlier recorded during the Phase I "Field Check" Survey (Birk 1986:96).

| Landform Stratum | Nature of Site: | | Sample Unit | Site No. | Site Field No. | Description | Type & Distance of Nearest Water | |
|------------------|---------------------------------|----|-------------|----------|---------------------------|-------------|----------------------------------|--|
| | Historic (H) or Prehistoric (P) | | | | | | | |
| 1 | H | — | 9 | — | Mrs. Al Schultz Grave | Marsh | 50m | |
| 1 | H | — | 23 | — | Rail Forest Lookout | Pothole | 500m | |
| 1 | H | 24 | 70 | 86-13 | Homestead foundations | Small lake | 250m | |
| 1 | H | 35 | 74 | 86-21 | Homestead | Marsh | 100m | |
| 1 | H-P | 23 | 76 | 86-11 | Multi-component | Lake | 200m | |
| 2 | H | — | 21 | — | Rail Prairie Cemetery | Pothole | 850m | |
| 2 | H | — | 26 | — | Stroming Grave Site | Small lake | 375m | |
| 2 | H | — | 27 | — | Lightner Baby Grave | Small lake | 670m | |
| 2 | H | — | 57 | — | Day Sawmill Site | Marsh | Adjacent | |
| 2 | H | 5 | 66 | 86-3 | Homestead foundations | Pothole | 100m | |
| 3 | H | — | 38 | — | Mushatt Sawmill Site | Pond | Adjacent | |
| 3 | H | — | 43 | — | Goose L. Forest Lookout | Marsh | 500m | |
| 3 | H | 3 | 64 | 86-1 | Homestead foundations | Marsh | Adjacent | |
| 3 | H | 3 | 65 | 86-2 | Homestead foundations | Marsh | 180m | |
| 3 | H | 10 | 67 | 86-6 | Homestead foundations | Small lake | 750m | |
| 3 | H | 30 | 72 | 86-15 | Homestead foundations | Pond | Adjacent | |
| 4 | H-P | — | 2 | — | Prosser Farm Site | River | Adjacent | |
| 4 | H | — | 8 | — | Franzen Family Cemetery | Marsh | 600m | |
| 4 | H | 39 | 10 | 86-23 | Chippewa Townsite | River | Adjacent | |
| 4 | H | — | 11 | — | Crow Wing River Cemetery | Marsh | 135m | |
| 4 | H | — | 17 | — | "Stanchfield Lumber Camp" | River | Adjacent | |
| 4 | H | — | 34 | — | "County Line" Ferry | River | Adjacent | |
| 4 | H | — | 46 | — | "Jane Doe" Child's Grave | River | 400m | |
| 4 | H | — | 47 | — | Green Prairie Cemetery | River | 220m | |
| 4 | H | — | 48 | — | Hall's Green Prairie P.O. | River | 425m | |
| 4 | H | — | 56 | — | Sartell Lumber Camp | Pond | Adjacent | |
| 4 | H | — | 60 | — | Old Fort Ripley Cemetery | River | 550m | |
| 4 | H | — | 61 | — | Ripley Hills Lumber Camp | Marsh | Adjacent | |
| 4 (?) | H | — | 62 | — | Zeb Pike's "Pine Camp" | River | Adjacent | |
| 4 | H | 36 | 63 | 86-22 | Historic Fur Post (?) | River | Adjacent | |
| 4 | H | 19 | 68 | 86-9 | Homestead foundation | River | 400m | |
| 4 | H | 20 | 69 | 86-10 | Homestead foundation | Pond | Adjacent | |
| 4 | H | 28 | 71 | 86-14 | Homestead foundation | River | 125m | |
| 4 | H | 32 | 73 | 86-16 | Homestead foundations | River | 600m | |
| 4 | H-P | 16 | 75 | 86-7 | Multi-component | River | Adjacent | |
| 4 | H-P | 33 | 77 | 86-17 | Multi-component | Marsh | Adjacent | |

LANDFORM STRATA KEY: 1 = Rugged; 2 = Moderate Slopes; 3 = Gentle to Rolling; 4 = Level

were screened and all soils and finds were recorded. Only positive shovel tests were mapped, usually with a buffer of negative tests to show the suspected limits of subsurface archaeological deposits. Shovel testing was generally confined to ridge tops and level or rolling ground surfaces. Shovel testing was not used in the exploration of steep sloping terrain.

Cultural resources were recorded as find_spots when single artifacts were found in isolation. Areas producing two or more artifacts in association--even if the area was included within a single shovel test (e.g., Site #78)--were recorded as "sites." Sites were placed into three categories based on their age and content: prehistoric, historic, and those with both prehistoric and historic components.

The sites and find spots discovered or examined during the 1986 IMA surveys at Camp Ripley are shown in Tables 6 and 7. The sites and find spots are listed in ascending numerical order by landform stratum. The nature and distance of the water resource nearest each site is also given.

Site Distributions and Relationships

The diverse cultural resources within the reserve suggest that many people lived in or used this environment in different ways through time (Birk 1986:97-98). A task of the archaeologist is to define trends or patterns in the distribution of the various cultural resources, so that possible site-site and site-environment relationships can be determined. These patterns can help explain the broad cultural history of the reserve and allow future land use plans to be formulated in a manner conducive to responsible sites management.

The search for spatial patterning began by "typing" the sites on the basis of function or content (such as prehistoric find spots, historic lumbering sites, historic homesteads, etc.). Each site was then considered for its location (landform stratum) and relationship to water.

FIND_SPOTS. The eight find spots recorded during the sampling survey were lithic recoveries. Two of the finds (Find Spots 1 and 2) came from a field disturbed by heavy vehicles and may represent "tank shatter." The remaining six finds, listed in Table 7, are believed to be prehistoric in origin.

Find Spot 4 is a broken projectile point (Fig. 19-B) found on the surface of Bataan Road. A shovel test forced through

Table 7. List of Prehistoric Sites and Find Spots by Landform Stratum and Relation to Water. Included are the cultural resources recorded during the Camp Ripley Sampling Survey, and those recorded during the Phase I "Field Check" Survey (Birk 1986:96).

| Landform Stratum | Nature of Site: Historic (H) or Prehistoric (P) | Sample Unit | Site No. | Site Field No. | State No. | Description | Type & Distance of Nearest Water |
|------------------|---|-------------|----------|----------------|-----------|--------------------|----------------------------------|
| 1 | H-P | 23 | 76 | 86-11 | 21M026 | Lithics, ceramics | Lake 200m |
| 1 | P | 8 | 78 | 86-4 | 21M028 | Lithic scatter (?) | River 125m |
| 1 | P | 8 | 79 | 86-5 | 21M029 | Lithic scatter | River 125m |
| 4 | P | — | 3 | — | 21M022 | Camp Ripley Mounds | River 100m |
| 4 | P | — | 5 | — | 21M023 | Minshaw Site | River Adjacent |
| 4 | P | — | 59 | — | 21M024 | Anchor Tower Site | River Adjacent |
| 4 | H-P | 16 | 75 | 86-7 | 21M025 | Lithic scatter | River Adjacent |
| 4 | H-P | 33 | 77 | 86-17 | 21M027 | Lithic scatter | Marsh Adjacent |
| 4 | P | 16 | 80 | 86-8 | 21M030 | Campsite (?) | River 150m |
| 4 | P | 28 | 81 | 86-20 | 21M031 | Lithics, ceramics | River Adjacent |
| 4 | P | 36 | 82 | 86-19 | 21M032 | Lithic scatter | River Adjacent |

FIND SPOTS

| | | | | | | | |
|---|---|----|----|---|---|------------------|--------------|
| 1 | P | 8 | 3 | — | — | Flake | River 240m |
| 1 | P | 13 | 5 | — | — | Flake | Marsh 450m |
| 1 | P | 34 | 10 | — | — | Debitage | Pothole 375m |
| 1 | P | 34 | 11 | — | — | Debitage | Pothole 500m |
| 3 | P | 12 | 4 | — | — | Projectile Point | Marsh 425m |
| 4 | P | 14 | 6 | — | — | Flake | Creek 120m |

LANDFORM STRATA KEY: 1 = Rugged; 2 = Moderate Slopes; 3 = Gentle to Rolling; 4 = Level

frozen topsoil in the field 5.5 meters east of the find spot revealed a layer of displaced soil or "fill" covering the original ground surface. A single flake was found in this fill. Because the origin of the fill and the associated cultural materials is unknown these deposits are of little immediate use in addressing site-site, site-land, or site-water relationships within the reserve.

Find Spots 10 and 11 are pieces of lithic debitage (that is, waste material from stone tool manufacture). These two finds were made on high ridgetops on the edge of the rugged St. Croix Moraine south of Pillager. If vegetated with grassland, both find spot areas would offer extensive views of the broad lowland plains in the adjacent Pillager Gap drainageway (Fig. 2). The find spots are in the vicinity of other reported prehistoric artifact recoveries (that is, the Hines Finds, Site #1).

Find Spots 3, 5, and 6 are flakes found on the edge of the moraine in areas near or overlooking Hole-in-the-Day Marsh on the Green Prairie outwash terrace (Fig. 2). If vegetated with grassland, the areas of Find Spots 3 and 5 would present considerable views of the Mississippi Valley. Find Spot 6 was made north of Prentice Pond in a side valley that might have provided good access between the low outwash terrace to the east and the morainic uplands in the west.

The five latter find spots are well removed from major water resources. The distance from the find spots to the nearest recognized water ranges from 120 to 500 meters. The average distance is 337 meters. The limited size and poor quality of these water resources suggests they little influenced the placement or use of the find spots areas. A more critical factor seems to be a preference for elevated terrain on the edge of the broad, plain-like, river valley terraces.

In review, the five undisturbed and "culturally-relevant" find spots are prehistoric lithic recoveries. All were found near the edge of the rugged moraine and most were from ridge top elevations (Stratum 1) that might have served as lookouts or vantages for sighting approaching game, weather, adversaries or other groups or phenomena. Such ridges may have had religious significance and could--at some time in the past--have played a role in religious quests or ceremonies.

PREHISTORIC SITES. Eleven prehistoric sites or site components have been verified by archaeologists within the reserve (Table 7). Few of these sites have produced ceramics. Most are on level terrain (Stratum 4) near major water resources. None were found in Strata 2 or 3.

The placement of the two upland sites (Sites #76 and #77) is the most difficult to understand and, with our present limited knowledge of site distributions in the reserve, would have been almost impossible to predict. Both are within 200 to 275 meters of lakes, both cover about 10,000 square meters, and both have historic components. The prehistoric component of Site #76 overlooks Foadick Lake in an area of moderately sloped end moraine (Stratum 2). This sparse scatter of lithic and ceramic material could be associated with an overland travel route or seasonal subsistence activities that required the use of ceramic vessels. The prehistoric site area has been cultivated. The prehistoric component of Site #77, known only for its lithics, lies on the low marsh-rich plain (Stratum 4) associated with old Glacial Lake Randall (Fig. 2).

The placement of the remaining nine prehistoric sites fit more predictable patterns (Table 7). Two of the sites (Sites #78 and 79) are on the high esker (Stratum 1) on the west bank of the Mississippi River in the vicinity of the Big Bend. Like certain of the find spots, this area gives a good view up and down the river valley. The esker sites range from an estimated 10 to 5300 square meters in size.

The other seven prehistoric sites (Sites #3, #5, #59, #75, #80, #81, and #82) are situated on level terraces (Stratum 4) adjacent to or within 150 meters of the Mississippi or Crow Wing Rivers. The placement of these sites, and their general configuration paralleling the edge of the rivers, suggest that the waterways were focal points of site placement and use. The Minshaw Site (Site #5), now separated from the Mississippi by a post-glacial alluvial floodplain, is believed to have been on the edge of the river at the time of site use (Birk 1986:78). Lakes and waterways were important features of prehistoric "cognitive maps" that helped define travel routes and areas of settlement, exploitation, and territoriality. The waterways were also a basic source of life-sustaining liquid, and aquatic resources such as fish, wild rice, and waterfowl.

These seven sites range from an estimated 250 square meters to 100,000 square meters in size. Throwing out the high and low figures, the average size is about 9600 square meters.

The present, known distribution of prehistoric sites within the reserve fits closely with site-environment models developed in adjacent and more northerly areas (for example: Birk 1979; Johnson et al. 1979). The pattern, in fact, is not unlike that reported by many archaeologists for the broader universe of prehistoric sites throughout the

northern woodland region of Minnesota. That is, the largest and densest prehistoric sites are found near water, while sites in upland areas away from water tend to be small, sparse, unstratified, single-component, limited activity locations without ceramics (Birk 1979:94; 1986:98). The grey zone in this model is the definition of the distance that places a site "near" or "away" from water.

Historic Sites. The sites listed in Table 6 reflect changes that occurred in man-land relationships in the Camp Ripley region during the post-Indian treaty period. The settlement and use of the land by immigrant Euro-Americans differed in many ways from that of earlier peoples. To show these changes, the historic sites were separated into categories with shared temporal and functional attributes.

The earliest historic sites within the reserve are identified with the Indian trade, exploration, townsites speculation and development, transportation, and lumbering. These earliest sites are almost invariably near the major transportation routes which means they were located on the Mississippi and Crow Wing Rivers or an adjacent river trail (Birk 1986:99). Zebulon Pike's "Pine Camp" (Site_#62) and the possible fur trading station at the mouth of the Crow Wing River (Site_#63) were later joined by old Fort Ripley (Site_#33), the Ripley Ferry (Site_#32), and the townsites of Chippewa (Site_#10), Crow Wing City, and West Crow Wing (Site_#2) in Stratum 4 locations adjacent to the rivers.

The first lumbering site in the reserve, and the Mississippi Valley above Little Falls, was Stanchfield's 1847-1848 Camp (Site_#17) also situated in Stratum 4 adjacent to the Mississippi River (Birk 1986:29-33). Other later lumbering camps and mills were built adjacent to water features, but in upland areas away from the river. The Ripley Hills Camp (Site_#61) and Sartell Camp (Site_#56) are in Stratum 4 locations next to a marsh and pond. The Day Sawmill is a Stratum 2 site next to a marsh and the Mushatt Sawmill is in Stratum 3 on the edge of a pond.

Two forestry lookout tower sites in the reserve reflect the new 20th century concern for forest conservation. These sites (Sites_#23_and_#43) are on Stratum 1 and 3 elevations with superior views of the surrounding terrain. Both sites are at least 500 meters from the nearest pothole or marsh.

The historic cemeteries within the reserve can be divided into those marking private plots and those used by larger "community" groups. The private cemeteries containing family and individual interments include the Franzen Family Cemetery (Site_#8), Mrs. Albert Schultz Grave (Site_#9),

Stroming Grave (Site_#26), Lightner Baby Grave (Site_#27), and "Jane Doe" Child's Grave (Site_#46). These private burials are fairly evenly dispersed in Strata 1, 2, and 4 and appear on elevations or pleasant meadow or woodland areas near family farms or homesteads. As expected, their placement has more to do with the isolation, needs, and convenience of the early pioneer settlers than with any discernible relationship to water or landform features.

The community cemeteries are an outgrowth of increased population, community development, and the desire and need for centralized, memorialized, and maintained interments. These include the Crow Wing River Cemetery (Site_#11), Rail Prairie (Union) Cemetery (Site_#21), Green Prairie Cemetery (Site_#47), and the "Lost" Fort Ripley Cemetery (Site_#60). With the exception of Site #21, these cemeteries are in Stratum 4 locations within 220 meters of a recognizable water resource. Site #21 was established by the Gilgal Church congregation on a hill (Stratum 2) with a pleasant setting and view. Placement of this church-cemetery facility on the edge of the moraine may have been a conscious attempt to conserve the adjacent and level Scandia Valley for cultivation.

The remaining historic sites are farms, homes, and buildings that relate to the settlement or agricultural exploitation of the land. These include the Prosser Farm (Site_#2), Hall's Green Prairie Farm and Post Office (Site_#48), eleven unnamed farmsteads (Sites_#64_through_#74), and three "multi-component" historic farm sites with prehistoric components (Sites_#75_through_#77). These sixteen sites are more widely and evenly spread across the various landform strata than are the prehistoric sites. Most are in Strata 3 and 4 locations (75 percent) with only one site in Stratum 2 and three in Stratum 1. This distribution shows a general congruity between farmsteads and level-to-gently rolling terrain. Not surprisingly, this site-landform relationship is much stronger than any perceived site-water relationship for the same group of sites.

White settlement and land use was greatly facilitated by modern road nets, rail access to distant markets, more efficient farming technology and, eventually, automobiles and rural electrification. With the growing availability of goods and services (including rural schools, mail delivery, and telephones) modern agriculturalists could settle almost anywhere within the area of the Camp Ripley reserve where the soil was of adequate fertility, slope, and drainage to provide a predictable income.

In summary, the cultural resources studied during the IMA surveys form a material archives of the past. Information from these various sites help document historical events, cultural and ecological changes, and patterns of human behavior. New data gathered during the Phase I sampling survey indicate that the distribution of historic and prehistoric sites basically conforms to the predictive model cited in the IMA's earlier Camp Ripley report (Birk 1986:97-99). Future site discoveries will support, refute, or refine this model, augment the local inventory of sites, and strengthen our understanding of the cultural history of the reserve area.

Observed Lithic Materials

As part of the survey IMA archaeologists kept a record of the various types of flakeable stone materials observed within most sample units. It was hoped this unscientific study would shed light on lithic raw material distributions in the glacial terrain of the Camp Ripley reserve. The results are less than spectacular.

Of the 32 sample units where lithic observations were recorded, 31 (or 97 percent) were observed to contain cobbles of white quartz. White quartz chipped-stone tools are common to prehistoric sites and private collections in this region.

Quartzite, agate, and chert was seen in 78 to 84 percent of the sample units. Jasper was observed in 53 percent of the units. Jasperite was found in 22 percent, and both Tongue River silica and Knife River flint (brown chalcedony) were in 9 percent. Raw or unworked "Tongue River" silica is difficult to identify in the field. Knife River flint is considered an "exotic" traded from sources in North Dakota.

The distribution of these lithic raw materials is fairly evenly distributed across the various strata within the reserve. Overall, the observed lithic materials were quite typical of stone types found on prehistoric sites throughout central Minnesota. One notable exception was the recovery from Site #82 of some oolitic chert with evidence of limestone bedding.

Auxiliary Goals

Survey Conditions and Scheduling. IMA archaeologists have now completed two cultural resource surveys within the Camp Ripley reserve. One survey was done in the spring when the

leaves opened, mosquitoes swarmed, whitetail fawns bedded, and the days became hot and dry (Birk 1986:19). The second survey--described in this report--was done in the fall when the leaves dropped, mosquitoes vanished, deer hunters emerged, and extreme cold and snow made their appearance.

Based on these experiences and other surveys conducted by the author in the Mississippi Headwaters region over the past 25 years, there is little question that maximum surface and lateral visibility in northern woodland environments is during the early spring and late fall. The best times for conducting archaeological surveys in the reserve are probably between early April and late May, and again in the fall between mid-September and early-November. In the spring, access and movement will normally be restricted in some areas by high water and the presence of fawning deer. Summers at the reserve are given over to "green out" conditions from thick vegetation, woodtick and mosquito infestations, and military training activities. Winters are generally too cold, the days too short, and the ground too snow-covered to do anything constructive.

There are some archaeological activities that can be pursued during times of poor survey conditions. Summers are a good time to do intensive excavations on specific sites, or to search for offshore (underwater) site potentials. As focused, sedentary activities, site excavations can be scheduled or directed to avoid conflict with military training operations. During the period of freeze-up, and particularly after a light dusting of snow, is a good time to look for and map surface features like old trails, roadways, building outlines, and Indian mounds.

Survey Methods and Evaluation. Categorically speaking, there are two types of archaeological resources within the reserve: those documented by written record or remembrance, and those for which written records and memories are unknown. Surveys, then, may be geared to looking for specific sites (such as named forts, mills, camps, ferry crossings, farms, etc.) or just sites in general.

Finding different "types" of sites may require different approaches. The search for a known site is usually narrowed to a certain geographical area. Information may also exist that describes the kinds and arrangement of features once present on the site. With a set of expectations about a site's size, and the period, intensity, and duration of its use, archaeologists can select methods appropriate to finding, identifying, and studying the remains in question. Methodologies are streamlined to particular targets. There is obviously more of a challenge in finding an unmarked

grave than in finding the site of a sprawling lumber camp or farmstead.

Unrecorded sites also come in many sizes and configurations. Some will be found during pedestrian surveys, while others will only be revealed by subsurface testing. Deeply buried archaeological materials may be present in bogs and swamps, or on floodplains, islands, and at the base of high embankments where they might be covered by slope wash (Fay 1985,1:51).

Future cultural resource surveys in the reserve should be done with regard to natural environmental zones. If future investigators use the landform strata outlined in this report they should work to refine and improve upon the definition and use of these strata. Field surveys might maximize the surveillance of soil exposures caused by fire breaks, road construction, erosion, rodents, military maneuvers, and the like. Systematic interval sampling must be relied upon to survey heavily vegetated areas or when seeking deeply buried sites. Known sites, particularly those of a historic nature, should be carefully researched before entering the field. Greater use should also be made of local collections and informants when dealing with the prehistoric past.

Surveys for unknown sites can be done in broad parcels or linear transects. Both methods were used during the present survey. The use of randomly-selected block-like sample units or "quadrants" within the reserve could be frustrated by abundant wetlands, wide-spread surface alterations, limited access, and the difficulty of defining sample unit boundaries in the field.

Fay suggested a means of conducting a random sampling survey of the reserve, and discusses some of the problems inherent to such an approach (Fay 1985,1:50-51). Fay's sampling strategy was not used because it was developed before stratification of the natural environment was completed and did not seem a fair test of the local environment. Even when mathematically-defined and "statistically valid" sampling surveys are conducted, as in the Nokaissippi Valley east of the reserve, there is wide latitude in determining just what was sampled and what the sample means in cultural and management terms (Birk 1979). In many ways, the results of the present Camp Ripley survey seem as satisfying as the results of the Nokaissippi survey even though, at Ripley, considerably less time and effort went into drawing the sample universe.

Evaluation of the present work should be viewed as an extension of earlier cultural resource surveys conducted in central Minnesota (e.g., Johnson et al. 1979; Lothson and Clouse 1985; Fay 1985; Birk 1979, 1986). Among the goals were to: inventory and assess cultural resources in relation to natural areas in the reserve; provide information that might help reconstruct local cultural history and man-land relationships; define and evaluate factors that have led to destruction or preservation of the cultural resource base; and suggest ways to assist future management of known and unknown cultural properties within the reserve. Overall there is reason to be optimistic that most of these goals have been met.

Future survey planners should keep in mind that the reserve is a military training facility with access to the state's National Guard equipment and expertise. The Guard reportedly maintains fixed-wing aircraft capable of taking precision multi-band aerial imagery (including color infrared). Good aerial imagery might assist future efforts to refine the environmental strata and to locate, identify, and assess sites within the reserve. Given the suspected density of prehistoric and early historic sites along the Mississippi and Crow Wing Rivers, it would be interesting to view aerial imagery taken along those river corridors at the time of emerging spring vegetation.

Survey Problems. Survey problems and sources of stress and conflict are discussed at length in Chapter 3 of this report. Among problems encountered in the field in 1986 were unseasonable weather, excessive moisture, restricted access and mobility due to slippery roads and flooding, difficulty in screening waterlogged soils, scarcity of local informants, bedded fawns, mosquitoes, and poison ivy. Many areas of the reserve are littered with military materials (spent munitions, etc.), and surveyors must always be alert to the possibility of unexploded munitions that could make shovel testing an unforgettable experience (Fay 1985,1:50).

While more a condition than a problem, it is amazing how much time is required to get to and from survey areas within the reserve each day. The reserve is deceiving in size, and while not large enough to qualify for statehood, it might almost be considered as a separate county! Future surveyors should carefully consider their travel time and costs when entering contracts to conduct surveys within the reserve. Four wheel drive vehicles are desirable, if not mandatory, in certain seasons of the year when surveying areas off the main roads.

Disturbance. Field conditions and accessibility at the reserve are a continuing source of concern. Large areas of the reserve are permanently or periodically closed for training purposes. Much of the countryside has been altered by farming, road-building, and military activities. Many areas are strewn with military hardware, gouged by foxholes, and scarred by tank tracks, gravel pits, and road cuts (Fay 1985,1:39; Birk 1986:21). Scattered signs reveal the presence of backfilled and sealed military trash dumps and latrines scattered throughout the reserve.

Site destruction is an irreversible and accretionary process that is eroding the universe of archaeological resources within the reserve. Any sites in areas permanently off-limits are now, for all intents and purposes, lost to field analysis. Given that the universe of sites is finite and non-renewable, the loss of any site for any reason inhibits our ability to know, understand, and explain the historic and prehistoric past within the reserve. By conducting archaeological surveys or reviews in advance of planned developments, potential sources of damage to both known and unknown sites can be reduced or eliminated. All cultural resource reviews and management decisions should be done in compliance with state and federal preservation policies and guidelines (Fay 1985,1:45). The close working relationship between the National Guard, the Corps, and the Minnesota State Historic Preservation Office has been beneficial and should be maintained and strengthened in the future.

A serious problem in the reserve is the discovery that track vehicles have fragmented lithic raw materials in such a way that it is difficult to differentiate the resulting "tank shatter" from prehistoric debitage (stone wastage). The full, long-range impact of this phenomena on future site surveys and analyses could be considerable. If possible, the range of track vehicles within the reserve should be restricted. Considering their potential for damaging and contaminating_or_confusing the archaeological record, track vehicles should be denied access to all but selected training areas between the East Boundary-Pusan-Yalu roads corridor and the Crow Wing and Mississippi rivers.

Other activities that may be adversely impacting the cultural resource base are logging and reforestation. Log skidding and loading, road cutting, stump removal, rock-raking, disking, furrow planting, and all similar activities can be devastating to fragile archaeological deposits in thin woodland soils. A study of logging and reforestation techniques now allowed or practiced within the reserve would better reveal the extent of this problem.

Finally, there are the activities of souvenir hunters who knowingly dismantle sites one artifact at a time. Most artifact seekers are selective about what they collect and may only be interested in arrowheads, ceramic rimsherds, or metals. Over time, selective collecting can alter the archaeological record in such a way that it might mislead anyone who seriously attempts to study the remnant remains. Collecting has long been pursued at the site of old Fort Ripley (Baker 1971:147), and is evident at many other sites in the reserve. Metal detecting is the latest fad that has grown in intensity as new equipment has become increasingly sophisticated and affordable. Metal detecting is damaging not only for the loss of metal artifacts but, because in the process of taking the artifacts from the ground, collectors are coring sites like Swiss cheeses.

What happened in the reserve in the past cannot be changed. What happens in the future can be influenced through education and advertising existing laws against disturbing cultural resources on public lands. It might be advisable to post or publish the laws as a part of every marker, exhibit, brochure, or booklet that focuses attention on cultural resources within the reserve (Fay 1985,1:54). Site signage is a double-edge sword. It promotes and interprets the historical past but, unfortunately, serves to inspire and direct a certain minority interested in finding small "treasures of the moment."

Once removed from their context most souvenirs lose their historical value. Few are ever recorded and the facts surrounding their recovery are usually stored only in the minds of the finders. When the materials change hands, from one collector to another or from one generation to another, even that information is lost. Many potentially important materials become part of a hodge-podge of things picked up over the years by the collector (so that items found on trips to Montana, South Dakota, Canada, and Minnesota are lumped together in a single bag or box). Imagine the loss if the provenience or authorship of all of the written records in the State Archives were lost in the process of acquiring those materials! Private collecting of cultural materials within the reserve should be openly and emphatically discouraged and controlled. Extant collections in this area should be actively sought, studied, and/or acquired by a major archaeological institution or the local county historical society. If the collection policy and interests allow, perhaps some collections of prehistoric materials made within the Camp should be acquired for curation and study by the Camp Ripley Museum. An accessible base of provenienced materials found in this area would help

the study of sites and site samples under consideration within the reserve.

Specific Recommendations for Further Work

The sites reviewed in Chapter 4 represent a sample of the archaeological resources found within Camp Ripley. These sites document human presence in this region dating back several thousands of years. For the information they contain these sites are all worthy of preservation. This section addresses possible steps that might be taken to learn more about their study and interpretive potentials and eligibility for the National Register of Historic Places. Included is a discussion of time and cost estimates for Phase II testing.

Homestead-Farmstead Sites. The homestead sites present a somewhat singular research problem in that they all date roughly to the same period and have similar background histories. These include Sites #64 through #74 and the historic components of Sites #75, #76, and #77. Phase II studies should focus on doing background research on each of the sites in county archives at the Morrison County Courthouse and the Morrison County Historical Society in Little Falls. This work could probably be done by one competent investigator in 9 to 12 days. The sites should also be revisited to more thoroughly describe the features, condition, and archaeological potentials of each site. In most cases, the features of each site are visible on the ground and the general nature and distribution of artifacts can probably be defined through surface observation and remote sensing with a metal detector. Phase II field tests not involving subsurface investigations should take one investigator about one day per site. Plan on 3 to 5 days per site when excavation is required.

Sites #10 and #63, the Chippewa Townsite, and the possible trading post site near the mouth of the Crow Wing River, are similar in that both are on floodplains and both warrant immediate attention to determine their identities and potentials. It is mandatory that both sites be tested in the spring before the mosquitoes hatch or in the fall before the deer hunting season starts.

Site #10. The area of Feature A, the alleged log shanty claim on Site #10 (Figs. 3 and 4), should be scanned with a metal detector in advance of subsurface testing. To map the positive readings and test the earthen platform should take no more than 4 to 5 days. The search for the Chippewa Townsite plat should also be renewed in the collections of

the Morrison County Records Office. This will probably require an appointment in advance and at least one day's time if access to the alleged dead storage area in the courthouse basement can be obtained.

At Site #63 subsurface tests should be placed in the area of the possible fireplace mound and in one or more of the depressions (Fig. 5). The site area should also be scanned with a metal detector and all positive readings should be mapped. The goal is to obtain a larger sample of artifacts and architectural information that will help identify the nature and period of site use. Preliminary testing of this site could probably be done in 7 to 10 days.

Sites #75 and #80, on the west bank of the Mississippi in the area of Pipe Island, may represent parts of a discontinuous site complex that are separated by a formerly cultivated field. Site #75 (21M025), opposite the north end of Pipe Island (Fig. 16), is a prehistoric site with at least one recorded historic building outline (Feature A). Feature A should be scanned with a metal detector and then tested by cross trenching through one of the wall lines. This work will require 2 to 3 days. The prehistoric component could probably be tested for possible stratigraphy by digging two to three one meter pits. This work will require an additional 3 to 4 days. Site #80, opposite the south end of Pipe Island (Fig. 23) can be tested with a single one meter pit in 1 to 2 days. To more accurately assess the extent of archaeological materials along the river in this area, the open field separating these two sites (or loci) should be plowed and weathered in advance of a surface walkover.

Site #76. The prehistoric component of Site #76 (21M026), a thin scatter of prehistoric materials in a field on the north side of Fosdick Lake (Fig. 17), should also be conditioned by plowing and weathering. A controlled surface collection followed by the excavation of two or three one meter pits will require about 3 to 5 days.

Site #77. The prehistoric component of Site #77 (21M027), a lithic scatter north of Round Lake (Fig. 20), could probably be adequately sampled with two to three one meter pits in 4 to 6 days.

Sites #78 and #79 are on the edge of the large esker on the west bank of the Mississippi just above the Cantonment. Site #78 (21M028), a lithic scatter near the 2km ski trail marker (Fig. 21), could be tested with one or two one meter pits in 2 to 4 days. Site #79 (21M029), on the terrace at

the southeast end of the esker (Fig. 22), could be tested with two to three one meter pits in 3 to 6 days.

Site #81 (21M031), on the west bank of the Mississippi just above the mouth of "Frog Lake Creek" (Fig. 24), could be tested with three to four one meter pits in 5 to 7 days.

Site #82 (21M032), two prehistoric loci on the west bank of the Crow Wing River just upstream from Crow Wing Island (Figs. 25 and 26), could be tested with six to ten one meter pits in from 9 to 14 days.

Survey Costs

The cost of conducting field research will run about \$100 to \$150 a day per person, plus travel and per diem. Local motels run about \$25 to \$35 a night. All surveyors must be given a security briefing and clearance by the Camp Ripley security staff before field work can begin. Field surveys should be scheduled so as not to conflict with Camp training activities.

APPENDICES

**Appendix A. Scope of Work. Phase I Cultural Resources
Investigation at Camp Ripley, Minnesota**

1.00 INTRODUCTION

1.01 The Contractor will undertake a Phase I cultural resources investigation consisting of a systematic sampling survey at Camp Ripley, Minnesota. Camp Ripley (figure 1) is the General E. A. Walsh National Guard Training Center located near Little Falls, in central Minnesota.

1.02 This investigation partially fulfills the obligations of the Army National Guard regarding cultural resources, as set forth in the National Historic Preservation Act of 1966 (Public Law [PL] 89-665), as amended; the National Environmental Policy Act of 1969 (PL 91-190); the Archeological and Historical Preservation Act of 1974 (PL 93-291); the Advisory Council on Historic Preservation "Regulations for the Protection of Historic and Cultural Properties" (36 CFR, Part 800); and the applicable Army regulations (Army Regulation 420-40).

2.00 PROJECT DESCRIPTION

2.01 A Historic Preservation Plan (HPP) for Camp Ripley is being prepared by the St. Paul District, Corps of Engineers, under an agreement with the Army National Guard. The HPP will summarize the known cultural resources of the Camp and provide a strategy for the management of these resources as well as any that have not yet been discovered.

2.02 Three cultural resources projects have already been conducted at the Camp. In 1985, a literature search and records review was conducted that provided information on 64 prehistoric, historic, and architectural cultural resources. In 1986, 24 of these sites were field-checked by the Institute for Minnesota Archaeology and a geomorphic study was undertaken by the U. S. Army Waterways Experiment Station. Reports on both of the 1986 projects are in preparation.

2.03 The upcoming survey will incorporate the results of these three previous studies into a systematic sampling survey of the Camp. It may not be possible to obtain a statistically significant sample because of funding limitations, the large size of the study area, and the difficult survey conditions throughout most of the Camp. Therefore, the survey will focus on sampling various portions of the Camp to provide information that will guide future surveys and other aspects of cultural resource management. It will emphasize evaluating survey conditions; determining appropriate survey methods and techniques; identifying surveying problems; evaluating past and ongoing disturbance; and gathering as much information as possible on probable site types, distributions, sizes, and other characteristics.

2.04 The preferred survey approach would be to employ a stratified sampling strategy, the strata being defined as physiographic/geomorphic zones. Transect samples crossing the various strata are recommended because of the

difficulty in locating individual survey tracts in the Camp. The survey should include the project area for the proposed M-16 Record Firing Range (figure 2). In addition, intuitive sampling may be conducted in areas thought to be either endangered by future activities at the Camp or of especially high site potential.

2.05 The specific strategy for the survey will be developed prior to commencement of the field work by the Contractor and the Contracting Officer's representative at the St. Paul District.

3.00 DEFINITIONS

3.01 Cultural Resources include any building, site, district, structure, object, data, or other material relating to the history, architecture, archeology, or culture of an area.

3.02 A Phase I Cultural Resources Survey is an intensive, on-the-ground study of an area sufficient to determine the number and extent of the resources present and their relationships to project features. It will provide (1) data adequate to assess the general nature of the sites present; (2) recommendations for additional testing of those resources that may provide important cultural and scientific information; and (3) detailed time and cost estimates for Phase II testing.

3.03 Phase II Testing is the intensive testing of a resource that may provide important cultural or scientific information. This testing will result in (1) information adequate to determine whether the resource is eligible for inclusion on the National Register of Historic Places; (2) a Phase III mitigation plan for any eligible resources that will undergo a direct or indirect impact; and (3) detailed time and cost estimates for the mitigation.

3.04 Phase III Mitigation is the mitigation of the direct or indirect impacts of construction upon eligible sites through the systematic removal of data. It typically includes the excavation of either complete cultural deposits or a systematic sample of them and the thorough analysis and interpretation of the data recovered. The excavation, analysis, and interpretation methods must be adequate to address the important research questions based on which the resource was determined eligible. In addition, because the mitigation process destroys the resource, data should be recovered that may be needed to address future research questions.

4.00 SURVEY REQUIREMENTS

4.01 The Contractor will conduct a Phase I cultural resources investigation at Camp Ripley, in accordance with Sections 2.00 and 3.02 above.

4.02 The Contractor's work will be subject to the supervision, review, and approval of the Contracting Officer's representative.

4.03 The Contractor will employ a systematic, interdisciplinary approach in conducting the study, using techniques and methods that represent the current state of knowledge for the appropriate disciplines. The Contractor will

provide specialized knowledge and skills as needed, including expertise in prehistoric and historic archeology, history, architectural history, and other social and natural sciences.

4.04 The Contractor will provide all materials and equipment necessary to perform the required services expeditiously.

4.05 The Contractor's survey will be an on-the-ground examination sufficient to determine the number and extent of any cultural resources present, including standing structures as well as prehistoric and historic archeological sites.

4.06 The Contractor's survey will include surface inspection in areas where surface visibility is adequate to reveal any cultural materials that are present and subsurface testing in all areas where surface visibility is inadequate. Subsurface investigation will include shovel testing, coring, soil borings, cut bank profiling, or other appropriate methods. If the field methods used vary from those that are required, they must be described and justified in the Contractor's report.

4.07 The survey interval required for subsurface testing is 15 meters (50 feet). However, this interval may vary depending upon field conditions, site density, or size. If a larger interval is used, this decision must be justified in the Contractor's report.

4.08 The Contractor will screen all subsurface tests through 1/4-inch mesh hardware cloth.

4.09 The Contractor will coordinate with the Camp Ripley Operations Office, (612) 632-6631, ext. 337 or 346, concerning Camp Ripley security regulations prior to starting work. The Contractor is responsible for ensuring that his or her employees and subcontractors are informed of security requirements and that they comply with same.

4.10 The Contractor will ensure that a permit for working on State-owned land is obtained from the State Archeologist prior to the field work.

4.11 The Contractor will contact the Camp Ripley representative for the survey before leaving the field, to report the results. The Contractor will also notify the Contracting Officer's representative when the field work is completed.

4.12 The Contractor will return all surveyed areas as closely as practical to presurvey conditions.

4.13 The Contractor must keep standard records that include field notes and maps, site survey forms, subsurface testing forms, and photographs.

4.14 State site forms will be prepared for all sites discovered during the survey, and records on previously reported sites will be updated if new information is obtained. Data should be included on the present condition of each site and on the contents and locations of any collections from it. The

Contractor will also submit all site forms and updates to the appropriate State agency.

4.15 Cultural materials and associated records from the study should be curated at an institution that can ensure their preservation and make them available for research and public view. Curation should be within the State and as close as possible to the project area. The Contractor will be responsible for making curatorial arrangements, coordinating them with the appropriate officials of Minnesota and the National Guard, and obtaining approval from the Contracting Officer's representative.

5.00 GENERAL REPORT REQUIREMENTS

5.01 The Contractor will submit the following documents, described in this section and Section 6.00: a field report, field notes, a draft contract report, and a final contract report.

5.02 The Contractor's field report will be a brief summary of the nature, extent, and results of the field work conducted. It may be in the form of a letter to the Contracting Officer's representative.

5.03 The Contractor's field notes will include legible copies of important notes and records kept during the investigation. Especially important are the daily field journal of the Principal Investigator or field director, field site survey forms, and subsurface testing forms. One copy of these notes should be submitted to the Contracting Officer's representative with the draft contract report but should not be bound into the report.

5.04 The draft contract report will detail the approach, methods, and results of the investigation, and make recommendations for further work. It will be submitted to the Contracting Officer's representative, who will review it and forward it to other appropriate agencies for review. Comments will be returned to the Contractor, who will make the necessary revisions and submit the final contract report.

5.05 The Contractor's draft and final reports will include the following sections, as appropriate to the study. The reports should be as concise as possible, yet provide all the information needed to incorporate the results into the Historic Preservation Plan. They should avoid redundancy with other studies of the Camp (the literature search, field-checking, and geomorphic studies) that will also be incorporated into the HPP.

a. Title page: The title page will provide the following information: the type of study; the types of cultural resources assessed (archeological, historical, and architectural); the project name and location (county and State); the date of the report; the Contractor's name; the contract number; the name of the author(s) and/or Principal Investigator; the signature of the Principal Investigator; and the agency for which the report is being prepared (St. Paul District, Corps of Engineers, and the Army National Guard).

b. Management summary: This section will provide a concise summary of the study, containing all the information needed for management of the

project. This information will include the reason the work was undertaken, who the sponsor was, a brief summary of the scope of work and budget, a of the field work and lab analysis, the limitations of the study, the results, the significance of the results, recommendations for further work, and the repository for records and artifacts.

c. Table of contents

d. List of figures

e. List of plates

f. Introduction: This section will identify the sponsors (Army National Guard) and their reason for the study and present an overview of the study with each site located on USGS quad maps. It will also define the location and boundaries of the study area (using regional and area-specific maps); reference the scope of work; identify the institution that did the work and the number of people and person-days/hours involved; give the dates when the various phases of the work were completed; identify the repository of records and artifacts; and provide a brief outline of the report and an overview of its major goals.

g. Previous archeological and historical studies: This section will briefly summarize and evaluate previous archeological and historical research in the study area including the researchers, dates, extent, adequacy, and results of past work and any cultural/behavioral inferences derived from it.

h. Environmental background: This section will briefly describe the current and prehistoric environment of the study area, including its geology, vegetation, fauna, climate, topography, physiography, and soils. The relationship of the environmental setting to the area's prehistory and history should be stressed.

i. Theoretical and methodological overview: This section will state the goals of the sponsor and the researcher, the theoretical and methodological orientation of the study, and the research strategies that were applied to achieve the goals.

j. Field methods: This section will describe all field methods, techniques, and strategies and the reasons for using them. It will also describe field conditions, relevant topographic/physiographic features, vegetation conditions, soil types, stratigraphy, general survey results, and the reasons for eliminating any uninvestigated areas.

k. Laboratory and analysis methods: This section will explain the laboratory methods employed and the reasons for selecting them. It will reference accession or catalog numbers of any collections, photographs, or field notes obtained during the study and state where these materials are permanently housed. It will also describe and justify the specific analytical methods used, including any quantitative analysis of the data, and discuss limitations or problems with the analysis.

l. Results: This section will describe all cultural resources found during the study. It will minimally include each site's description (including size, depth, and artifact density); its location (USGS quad, legal description, elevation, and address if appropriate); the amounts and types of remains recovered; its environmental setting; its current condition; and any additional interpretations (e.g., site type, cultural components, and human behavioral information).

m. Evaluation and conclusions: This section will formulate conclusions about the location, size, condition, and distribution of the resources found; their relationships to other sites in the area; and their possible importance in terms of local and regional prehistory, protohistory, and history. It will also relate the results of the study to the stated goals; identify any changes in the goals; assess the reliability of the analysis; and discuss the potential of and goals for future research.

n. Recommendations: This section will recommend any further work deemed necessary. It will summarize Phase II evaluation measures that would be needed to determine whether specific resources are eligible for the National Register of Historic Places, as well as a time and cost estimate for this work. It will also describe any areas that were inaccessible, and recommend future treatment of them. If the Contractor concludes that no further work is needed at any site, the evidence and reasoning supporting this recommendation will be presented.

o. References: This section will provide bibliographic references (in American Antiquity format) for every publication cited in the report. References not cited in the report may be listed in a separate "Additional References" section.

p. Appendix: This section will include the Scope of Work, resumes of project personnel, copies of all correspondence relating to the study, and any other pertinent information referenced in the text. It will also include State site forms for all sites identified during the survey, including find spots and previously recorded sites.

q. Figures: The location of all surveys areas, sites, and other features discussed in the text will be shown on a legibly photocopied USGS map bound into the report. In addition, the locations of all subsurface tests will be indicated on maps of appropriate scale and detail and keyed to the subsurface testing forms included with the field notes. Other recommended figures are regional and project maps, photographs of the project area, and line drawings or photographs of diagnostic artifacts, structures, and unit or feature profiles.

r. Tables: The report should include tables of cultural materials by site and provenience (for example, excavation unit and level). Information that may require more detailed tabulation includes lithic tool types and raw materials, ceramic attributes, and floral and faunal remains.

5.06 A cover letter submitted with the final contract report will include the project budget.

5.07 The Contractor will provide transparent overlays showing the survey areas, sites located, and other relevant information at 1:25,000 scale with the draft contract report.

5.08 The Contractor will submit to the Contracting Officer's representative the negatives for all photographs that appear in the final report.

6.00 REPORT FORMATS

6.01 There are no specific format requirements for the field report. A letter report is usually sufficient.

6.02 There are no format requirements for the field notes; however, they must be legible. If the original handwritten notes are illegible, they should be typed.

6.03 Formats for both the draft and final contract reports are as follows:

a. The Contractor will present information in whatever textual, tabular, or graphic forms are most effective for communicating it.

b. The draft and final reports will be divided into easily discernible chapters, with appropriate page separations and headings.

c. The report text will be typed, single-spaced (the draft report should be space-and-one-half or double-spaced), on good quality bond paper, 8.5 inches by 11.0 inches, with 1.5-inch binding and bottom margins and 1-inch top and outer margins, and may be printed on both sides of the paper. All pages will be numbered consecutively, including plates, figures, tables, and appendixes.

d. All illustrations must be clear, legible, self-explanatory, and of sufficiently high quality to be reproduced easily by standard xerographic equipment, and will have margins as defined above. All maps must be labeled with a caption/description, a north arrow, a scale bar, township and range, map size and dates, and map source (e.g., the USGS quad name or published source). All photographs or drawings should be clear, distinct prints or copies with captions and a bar scale.

7.00 MATERIALS PROVIDED

7.01 The Contracting Officer's representative will furnish the Contractor with access to any publications, records, maps, or photographs that are on file at the St. Paul District headquarters.

7.02 The Camp Ripley representative will provide the Contractor with a base map of the Camp at 1:25,000 scale.

8.00 SUBMITTALS

8.01 The field work completion date for this project will be November 15.

1986. The work may begin in August in certain areas of the Camp but, because of the Camp's training schedule, most of the work should be conducted after Labor Day weekend. The survey schedule should be coordinated with the Camp Ripley representative and the Contracting Officer's representative to determine priorities and timing for the field work.

8.02 The Contractor will submit reports according to the following schedules:

a. Field report: A brief letter report summarizing the field work and its results will be submitted to the Corps of Engineers within 10 days of completion of the field work.

b. Draft contract report: Seven copies of the draft contract report will be submitted no later than 45 days after completion of the field work. The draft contract report will be reviewed by the Corps of Engineers, the State Historic Preservation Officer, the State Archeologist, and the National Park Service. The draft contract report will be submitted according to the report and contract specifications outlined in this scope of work.

c. Project field notes: One legible copy of all the project field notes will be submitted with the draft contract report.

d. Final contract report: The original and 15 copies of the final report will be submitted 60 days after the Contractor receives the Corps of Engineers comments on the draft report. The final report will incorporate all the comments made on the draft report.

9.00 COORDINATION AND CHECKPOINT MEETINGS

9.01 Meetings will be held as necessary between the Contractor, the Contracting Officer's representative at the St. Paul District, the Camp Ripley representative, and the State Historic Preservation Office staff to coordinate and monitor the study.

a. One or more meetings will be arranged before the commencement of the field work to develop the survey strategy and methods.

b. One or more meetings will be scheduled after the conclusion of the field work and during the analysis, so that the initial results of the survey can be incorporated into the development of the Historic Preservation before the contract report has been completed.

9.02 The Contracting Officer's representative may visit the project during the field work or analysis, with or without notice, to monitor the progress of the study.

10.00 CONDITIONS

10.01 Failure of the Contractor to fulfill the requirements of this Scope of Work will result in rejection of the Contractor's report and/or termination of the contract.

10.02 Neither the Contractor nor his representative shall release any sketch, photograph, report, or other materials of any nature obtained or prepared under the contract without specific written approval of the Contracting Officer's representative prior to the acceptance of the final report by the Government.

10.03 All materials, documents, collections, notes, forms, maps, etc., that have been produced or acquired in any manner for use in the completion of this contract shall be made available to the Contracting Officer's representative upon request.

10.04 Principal investigators will be responsible for the validity of material presented in their reports. In the event of controversy or court challenge, the principal investigator(s) will be placed under separate contract to testify on behalf of the Government in support of the findings presented in their reports.

10.05 The Contractor will be responsible for adhering to all State laws and procedures regarding the treatment and disposition of human skeletal remains. Any human remains recovered will be treated with respect and will not be placed on public display.

11.00 METHOD OF PAYMENT

11.01 The Contractor will make monthly requests for partial payment on ENG Form 93 under this fixed price contract. A 10-percent retained percentage will be withheld from each partial payment. Final payment, including the previously retained percentage, will be made to the Contractor upon approval of the final report by the Contracting Officer's representative.

Appendix B. Resumes of Field Crew

Douglas A. Birk, Research Associate
 Institute for Minnesota Archaeology
 1313 Fifth Street Southeast, Suite 205
 Minneapolis, MN 55414

Position: Principal Investigator

Education:

1977-78 Post graduate studies, University of Minnesota
 1966 B.A. Anthropology, University of Minnesota

Professional Experience:

1982-87 Research Associate, Institute for MN Archaeology
 1982-85 Chair, Institute for Minnesota Archaeology
 1982-83 Vice President, Council for Minnesota Archaeology
 1981-87 Editorial Board, Minnesota Archaeological Society
 1970-81 Archaeologist, Minnesota Historical Society

Awards:

1986 Minnesota's Independent Scholar of the Year, an
 award presented by the MN Humanities Commission
 1979 Theodore Blegen Award for outstanding historical
 research, Minnesota Historical Society
 1976 National Geographical Society Research Grant for
 underwater investigations at Grand Portage
 National Monument (co-principal investigator)

Publications:

Author of numerous papers and publications on the colonial,
 fur trade, logging, and prehistoric aspects of western Lake
 Superior history. Some of the most recent archaeological
 reports are listed in the "References Cited" section of this
 report.

Professional Organizations:

Society for American Archaeology, Society for Historical
 Archaeology, Plains Anthropological Association, Council for
 Minnesota Archaeology, Minnesota Archaeological Society,
 Wisconsin Archaeological Society, and The Champlain Society.

Jeffery A. Tollefson
Route 2, Box 134
Gaylord, Minnesota 55334

Position: Field Assistant

Education:

University of Minnesota, Minneapolis Campus.
Archaeology major, Math minor, 3 years.

St. Cloud State University, St. Cloud, Minnesota.
English major, 2 years.

Professional Experience:

- 1986 INSTITUTE FOR MINNESOTA ARCHAEOLOGY - Field Crew,
Site 21M020, Little Falls, Mn (July-September).
Douglas Birk, Project Director.
- 1986 INSTITUTE FOR MINNESOTA ARCHAEOLOGY - Field Assistant,
Southwest 639 Project (April-June). Dr. Clark Dobbs,
Project Director.
- 1983 INSTITUTE FOR MINNESOTA ARCHAEOLOGY - Field Assistant,
Bryan Site Project, Red Wing, Minnesota. Dr. Clark
Dobbs, Project Director.

Kolleen M. Kralick
168 Orchard Road
Adrian, Michigan 49221

Position: Field Assistant

Education:

- 1981-87 MICHIGAN STATE UNIVERSITY - East Lansing, MI
Bachelor of Science Degree in Anthropology,
program emphasis in Archaeology. Bachelor of
Arts Degree in Business Administration, program
emphasis in Accounting.
- 1984 FIELD SCHOOL - Michigan State University at
St. Ignace (Historic Huron Village Site)
- 1977-81 ADRIAN SENIOR HIGH SCHOOL - Adrian, MI
Honors Student, Course emphasis in College
Preparation

Professional Experience:

- 1986 INSTITUTE FOR MINNESOTA ARCHAEOLOGY - Field Crew,
Site 21M020, Little Falls, Mn (July-September)
- 1985 INSTITUTE FOR MINNESOTA ARCHAEOLOGY - Field Crew,
Site 21M020, Little Falls, Mn (July-September)

Appendix C. Survey Correspondence

17 September 1986

Dr. Kathy Stevenson, Archaeologist
Environmental Resources Branch
Corps of Engineers
1135 U.S. Post Office & Custom House
St. Paul, MN 55101

Dear Dr. Stevenson:

Re: DACW37-86-Q-0173 (Camp Ripley Site Sampling Survey)

It is my understanding that the following strategies and details for the Camp Ripley Cultural Resources Investigation were agreed upon at our meeting on Monday, 15 September. If there are any changes please advise soonest.

1. I will request that the SAO update the state permit issued to the IMA earlier this year for cultural resource investigations on the military reserve.
2. I will visit the proposed 71-acre M-16 firing range site as a first priority. I will then report to both you and John Ebert at the Camp regarding the ground condition of the proposed range site and estimate the field time it might take to conduct a Phase I survey of this tract. You will then advise ASAP whether this work should proceed as part of the present contract or be done as a separate project sometime in the future.
3. I will calculate the area of the various physiographic regions you defined on the USGS maps. These figures will help guide the field work to make sure that each landform stratum is surveyed with an intensity appropriate to the overall area of each stratum. The strata will be based on slope and drainage characteristics and not formative origins.
4. The field work will maximize the use of pedestrian surveys to find sites in areas like fields, road cuts, eroded surfaces, and tank tracks. Shovel testing will be used most extensively in the north half of the reserve where there are fewer open areas. Shovel testing will be used to test various ridge top locations on the edge of the moraine. The pedestrian surveys will be supplemented with shovel testing or through the use of a bucket auger to test for

Stevenson, 17 September 1986
Page Two

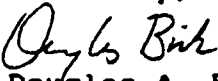
buried soil or cultural horizons. The general idea is to cover as much ground in each of the strata as possible in the time allotted.

5. Historical sites will be recorded when encountered in the field. However, they will not normally be tested or collected and historic properties will not routinely be given state site numbers.

6. I will contact John Ebert at the Camp to inquire about pre-survey plowing, the location of unmapped bull-dozed "back roads," and the location of recent tank exercises (to find areas torn up by tank maneuvers). I will also ask about the possible use of a military helicopter to do aerial surveillance and photography, and invite John to accompany a survey team in the field to see how surveys are done.

Thanks for you help!

Sincerely,



Douglas A. Birk
Research Associate, IMA

15 December 1986

Mr. Robert Fay, Archaeologist
Environmental Resources Branch
Corps of Engineers
1135 U.S. Post Office & Custom House
St. Paul, MN 55101

Dear Mr. Fay:

RE: DACW37-86-Q-0173 (Camp Ripley Site Sampling Survey)

This is to inform you that the Institute's Phase I archaeological sampling survey of the Camp Ripley Military Reserve was conducted between 22 September and 15 November. As requested in the contract this field report will briefly summarize the areas examined, the methods used, and the results of the study. Other comments are added.

1. Survey Areas. Before the survey began, the land area of the military reserve was subdivided into a number of physiographic zones by Dr. Kathy Stevenson of the Corps of Engineers. Using slope and drainage as criteria, these strata were categorized as rugged, moderate slope, gentle to rolling, level, and marshy. Dr. Stevenson delineated these strata on a set of USGS Quads presented to the IMA prior to the survey. From the quads the total combined acreage of each physiographic zone or stratum was estimated in quarter section tracts. For example, those areas of the reserve with "rugged" terrain comprised about 79 quarter sections or 12,640 acres of land. The estimated acreage and percentage of each zone surveyed are shown in the following table:

| Landform Stratum | Total Acreage | % of Total | Acres Surveyed | % of Stratum Surveyed |
|---------------------|------------------|---------------|-------------------|--------------------------|
| Rugged | 12640 | 26% | 205 | 2% |
| Moderate | 5760 | 12 | 313 | 5 |
| Gent/Roll | 12320 | 26 | 370 | 3 |
| Level | 10400 | 22 | 535 | 5 |
| Marshy | 7040 | 15 | --- | --- |
| TOTALS: | 48160 | 100% | 1423 | 3% |

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As indicated, the IMA survey covered about 1423 acres of land or about three percent of the total estimated survey area.

2. Survey Methods. The Phase I survey maximized the use of pedestrian reconnaissance to find sites in areas like fields, fire breaks, road cuts, eroded surfaces, rodent burrows, and tank tracks. Shovel testing was used to survey areas with heavy vegetation and to define the limits of subsurface prehistoric site deposits. One historic site was examined with the aid of a soil probe.

The IMA team spent some time interviewing persons who worked or lived in the reserve area. Some of these individuals had direct knowledge of prehistoric materials that were collected from areas within or adjacent to the reserve.

I spent considerable time going through records at the Crow Wing, Morrison, and Todd county courthouses searching for information on early townsites in the Crow Wing-Camp Ripley area. I was particularly hopeful of finding the "lost" plat of the town of Chippewa. Although little was found, this work was helpful in understanding the origin and use of these townsites (namely Chippewa, West Crow Wing, and Crow Wing City).

3. Survey Results. The Phase I survey found evidence for 21 sites. The 12 historic sites include 11 homesteads or farms, one possible pre-1820 trading post, and one possible early townsite shanty claim site. Five prehistoric sites were found, four of which produced only lithic materials and one of which produced lithics and ceramics. Three multi-component sites were found that contained both prehistoric lithic artifacts and historic homestead materials. The prehistoric component of one of these three sites also produced ceramics.

In addition to the sites, eight lithic "find spots" were found during the survey. These included seemingly random finds encountered through surface recon or shovel testing.

The number of "diagnostic" prehistoric artifacts found during the survey was limited and disappointing. The ceramics were basically small pieces or "crumbs." The lithic raw materials were generally typical of stone types found on prehistoric sites throughout central Minnesota (white quartz, Tongue River silicas, Knife River flint,

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agate, jasper, etc.). One site near the mouth of the Crow Wing river produced some sizable pieces of oolitic chert with evidence of limestone bedding which is uncommon to this area.

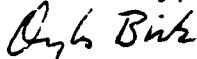
Final analysis of the distribution of these sites on the landscape has yet to be conducted, but an intuitive reaction is that the prehistoric sites were generally found near lakes or rivers. Considered alone the prehistoric site/water association seems to be stronger than any perceived prehistoric site/landform relationships. Most of the homestead and farm sites were encountered on level to gently rolling terrain. A first approximation is that the distribution of sites seems to confirm to the model predicted in Chapter 5 of the IMA's earlier Camp Ripley report (Birk 1986: "On Lands Set Apart: A Phase I Survey of Selected Archaeological, Historical, and Architectural Resources at Camp Ripley, Morrison County, Minnesota").

4. Processing and Analysis. The artifacts recovered during the Camp Ripley Survey have all been washed and catalogued. Analysis of these materials will begin shortly.

5. Payment and Reporting Schedule. The Corps payment schedule for the Camp Ripley survey has been slow and burdensome to the IMA. We have had to borrow money to meet our obligations and are reluctant to go further into debt on this project until additional payment is received. Having to borrow money is an unfair financial hardship on private contractors and unnecessarily slows the reporting schedule.

If you have any questions or comments to make at this stage of the work, I welcome them.

Sincerely,

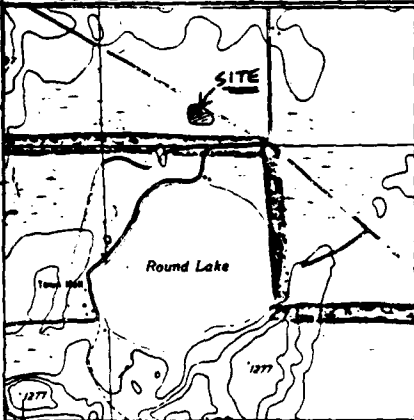


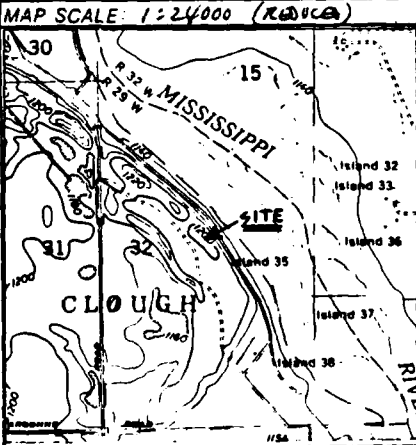
Douglas A. Birk
Research Associate, IMA

**Appendix D. State Site Forms for Prehistoric Sites
Investigated During the Phase I Sampling
Survey at Camp Ripley.**

| MINNESOTA ARCHAEOLOGICAL SITE FORM | | | |
|---|--------------------------------------|--|---|
| COUNTY MORRISON | SITE NAME | FIELD NUMBER #75 (86-7) | STATE NUMBER 21-MU-25 |
| OWNER STATE OF MINNESOTA | | U.S.G.S. QUAD BELLE PRAIRIE NW, (1956), 7.5' | |
| SITE LOCATION SITE IS ON WEST BANK OF MISSISSIPPI RIVER, BETWEEN RIVER AND CUNNINGHAM ROAD, OPPOSITE THE NORTHWEST END OF PIPE ISLAND, AND JUST NORTH OF AN OPEN FIELD. | | LEGAL DESCRIPTION E 1/2-NE-SW SECTION 19 T.131N R.29W twosp: CLOUGH | |
| SITE TYPE MULTI-COMPONENT | | PROBABLE CULTURAL COMPONENTS: PREHISTORIC-HISTORIC | |
| SITE DESCRIPTION / ENVIRONMENTAL SETTING SITE IS ON A LEVEL TERRACE ABOUT THREE METERS ABOVE THE RIVER. THE SITE IS CUT E-W BY A DEEP GULLY. THE DECIDUOUS FOREST COVER WAS RECENTLY LOGGED OFF LEAVING NUMEROUS STUMPS AND SLASHING PILES. POSSIBLE HISTORIC BUILDING SITE IS ON THE EDGE OF THE TERRACE, ABOUT 10-15 METERS NORTH OF THE NORTH EDGE OF THE FIELD. | | | |
| SITE CONDITION GOOD. WEST EDGE OF SITE PROBABLY DESTROYED BY CUNNINGHAM ROAD. SOUTH EDGE MAY BE DISTURBED BY CULTIVATION IN FIELD. | | CURRENT LAND USE MILITARY RESERVE | SITE AREA ABOUT 2700 M² |
| NATURE OF NEAREST WATER MISSISSIPPI RIVER | DISTANCE TO WATER ADJACENT | DIRECTION OF SITE FROM WATER WEST | |
| ELEVATION OF SITE: 1140' ASL | | ELEVATION OF NEAREST WATER: ABOUT 1130' ASL | |
| NATURE, EXTENT OF INVESTIGATION: SURFACE OBSERVATION AND SHOVEL TESTING | | | |
| ARTIFACTS OBSERVED, RECOVERED: A QUANTITY OF LITHIC DEBRIS WAS RECOVERED FROM SHOVEL TESTS. ONE WHITE CLAY SMOKING PIPE STEM FRAGMENT WAS FOUND ON A ROBERT BURROW. A SINGLE SHOVEL TEST IN A POSSIBLE HISTORIC BUILDING SITE REVEALED PART OF A CAST IRON STOVE | | | |
| LOCAL COLLECTIONS, INFORMANTS: | | MAP SCALE: 1:24000 (REDUCED) | |
| WRITTEN REFERENCES: | | | |
| COMMENTS: | | | |
| ACCESSION NOS. | PHOTO NOS. | REPOSITORY: INSTITUTE FOR MN ARCHAEOLOGY PROJECT: FT. RIPLEY SURVEY | INVESTIGATORS: BIRK, KRALICK, TULLOCH DATE: FALL 1986 |

| MINNESOTA ARCHAEOLOGICAL SITE FORM | | | |
|---|---------------------------------------|---|--|
| COUNTY MORRISON | SITE NAME | FIELD NUMBER #76 (86-11) | STATE NUMBER 21-MW-26 |
| OWNER STATE OF MINNESOTA | | U.S.G.S. QUAD BELLE PRAIRIE NW, (1956), 7.5' | |
| SITE LOCATION SITE IS IN OPEN FIELD ON NORTH SIDE OF FOSDICK LAKE ABOUT 1/10-MILE WEST OF PANTANO (LEDO) ROAD. | | LEGAL DESCRIPTION N 1/2 - NE - NE SECTION 22 T. 132 N. R. 30 W. Twp: RAIL PRAIRIE | |
| SITE TYPE MULTI-COMPONENT | | PROBABLE CULTURAL COMPONENTS: PREHISTORIC - HISTORIC | |
| SITE DESCRIPTION / ENVIRONMENTAL SETTING SITE LIES IN A FIELD SURROUNDED BY A MIXED PINE-OBJOUNT FOREST. SITE IS ON A LEVEL UPLAND TERRACE ABOUT 100' ABOVE FOSDICK LAKE. PREHISTORIC COMPONENT IS A SPARSE SCATTER OF PREHISTORIC LITHIC MATERIAL WITH POTTERY, FOUND IN CULTIVATED FIELD. FIELD IS NOW USED FOR MILITARY TRAINING PURPOSES. | | | |
| SITE CONDITION Prehistoric component has been cultivated. Historic Homestead Foundations are largely intact. | | CURRENT LAND USE MILITARY RESERVE | SITE AREA ABOUT 10,000 M ² |
| NATURE OF NEAREST WATER FOSDICK LAKE. ICE BLOCK LAKE IN ST. CLOUD MARINE. NO OUTLET. | DISTANCE TO WATER ABOUT 200 METERS | DIRECTION OF SITE FROM WATER NORTH | |
| ELEVATION OF SITE: 1360' ASL | | ELEVATION OF NEAREST WATER: ABOUT 1260' ASL | |
| NATURE, EXTENT OF INVESTIGATION: SURFACE OBSERVATION AND SHOVEL TESTING | | | |
| ARTIFACTS OBSERVED, RECOVERED: BROKEN CHERT BIFACE, LITHIC DEBRIS, 1 SHELL-TERRA COTTA "DRUM." | | | |
| LOCAL COLLECTIONS, INFORMANTS: | | | |
| WRITTEN REFERENCES: | | | |
| COMMENTS: | | | |
| ACCESSION NOS. | PHOTO NOS. | REPOSITORY: INSTITUTE FOR MN ARCHAEOLOGY PROJECT: FT. RIPLEY SURVEY | INVESTIGATORS: KRAVICK, TOLLESON DATE: FALL 1986 |

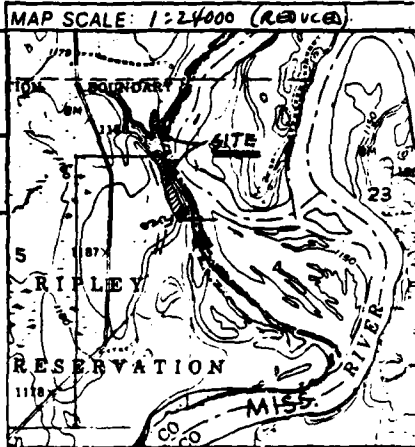
| MINNESOTA ARCHAEOLOGICAL SITE FORM | | | |
|---|---------------------------------------|--|--|
| COUNTY MORRISON | SITE NAME | FIELD NUMBER #77 (86-17) | STATE NUMBER 21-MO-27 |
| OWNER STATE OF MINNESOTA | | U.S.G.S. QUAD BELLE PRAIRIE NW, (1956). 7.5' | |
| SITE LOCATION SITE IS ABOUT 1/4 MILE NORTH OF ROUND LAKE ON THE SOUTH SIDE OF LUZON ROAD, ABOUT 1/5 MILE NORTHWEST OF THE INTERSECTION OF LUZON AND MANILA ROADS. | | LEGAL DESCRIPTION SW-SE-SW SECTION 22 T 132N R. 30W. Twp: CLOUGH | |
| SITE TYPE MULTI-COMPONENT | | PROBABLE CULTURAL COMPONENTS: PREHISTORIC-HISTORIC | |
| SITE DESCRIPTION / ENVIRONMENTAL SETTING SITE CONSISTS OF HISTORIC FARM REMAINS OVERLYING AND INTERMIXED WITH A SPARSE PREHISTORIC COMPONENT. THE SITE IS JUST WITHIN THE MILITARY RESERVE, ON A LOW TERRACE SURROUNDED BY SWAMP. PART OF THE SITE AREA IS CUT BY DITCHES AND BERM. | | | |
| SITE CONDITION PREHISTORIC COMPONENT IS DISTURBED. HISTORIC FARM FOUNDATIONS ARE LARGELY INTACT. | | CURRENT LAND USE MILITARY RESERVE | SITE AREA ABOUT 10,000 M ² |
| NATURE OF NEAREST WATER ROUND LAKE | DISTANCE TO WATER ABOUT 300 METERS | DIRECTION OF SITE FROM WATER NORTH | |
| ELEVATION OF SITE: ABOUT 1220' ASL | | ELEVATION OF NEAREST WATER: ABOUT 1215' ASL | |
| NATURE, EXTENT OF INVESTIGATION: SURFACE OBSERVATION AND SHOVEL TESTING | | | |
| ARTIFACTS OBSERVED, RECOVERED: THE PREHISTORIC COMPONENT YIELDED LITHIC DEBRIS, ONE KNIFE RIVER PROJECTILE PT. AND THE BROKEN TIP OF ANOTHER PT. | | | |
| LOCAL COLLECTIONS, INFORMANTS: | | MAP SCALE: 1:24000 (REDUCED)  | |
| WRITTEN REFERENCES | | | |
| COMMENTS: | | | |
| ACCESSION NOS. | PHOTO NOS. | REPOSITORY: INSTITUTE FOR MN ARCHAEOLOGY PROJECT: AT. Ripley Slaroy | INVESTIGATORS: KRALICK, TOLLESON DATE: FALL 1986 |

| MINNESOTA ARCHAEOLOGICAL SITE FORM | | | |
|---|---------------------------------|--|---|
| COUNTY Morrison | SITE NAME | FIELD NUMBER #78 (86-4) | STATE NUMBER 21-MO-28 |
| OWNER STATE OF MINNESOTA | | U.S.G.S. QUAD BELLE PRairie, MN (1954). 7.5' | |
| SITE LOCATION SITE IS ON CREST OF ESKER ABOUT 120 M. WEST OF MISSISSIPPI. SITE IS ADJACENT TO CROSS COUNTRY SKI TRAIL, NEAR 2 KM TRAIL MARKER | | LEGAL DESCRIPTION SW-SE-NW SECTION 32 T. 132N. R. 32W. TwpSD: CLOUGH | |
| SITE TYPE PREHISTORIC | | PROBABLE CULTURAL COMPONENTS: UNKNOWN | |
| SITE DESCRIPTION / ENVIRONMENTAL SETTING SITE CONSISTS OF A SINGLE POSITIVE SHOVEL TEST PLACED ON THE CREST OF AN ESKER RIDGE. SITE AREA IS COVERED BY A MIXED PINE-DECIDUOUS FOREST. | | | |
| SITE CONDITION DISTURBED by SHOVEL TEST AND ADJACENT GROOMED SKI TRAIL | | CURRENT LAND USE MILITARY RESERVE | SITE AREA ABOUT 10 M ² |
| NATURE OF NEAREST WATER MISSISSIPPI RIVER | DISTANCE TO WATER 120 METERS | DIRECTION OF SITE FROM WATER WEST | |
| ELEVATION OF SITE: 1200' ASL | | ELEVATION OF NEAREST WATER: 1140' ASL | |
| NATURE, EXTENT OF INVESTIGATION: SHOVEL TESTING | | | |
| ARTIFACTS OBSERVED, RECOVERED: WHITE QUARTZ AND POSSIBLE CHERT DEBRIS | | | |
| LOCAL COLLECTIONS, INFORMANTS: | | MAP SCALE: 1:24000 (REDUCED)  | |
| WRITTEN REFERENCES | | | |
| COMMENTS: | | | |
| ACCESSION NOS. | PHOTO NOS. | REPOSITORY: INSTITUTE FOR MN ARCHAEOLOGY PROJECT: FT. RUMOR SURVEY | INVESTIGATORS: TOLLESON DATE: FALL 1986 |

| MINNESOTA ARCHAEOLOGICAL SITE FORM | | | |
|---|---|---|--|
| COUNTY MORRISON | SITE NAME | FIELD NUMBER #79 (86-5) | STATE NUMBER 21-MO-29 |
| OWNER STATE OF MINNESOTA | | U.S.G.S. QUAD BELLE PRAIRIE, MN (MSL) 7.5' | |
| SITE LOCATION SITE IS ON ESKOL TERRACE ABOUT 140M WEST OF MISSISSIPPI. SITE IS IN MILITARY BIVOUAC AREA OVERLOOKING RIVER AND EAST BOUNDARY ROAD | | LEGAL DESCRIPTION 5 1/2 - NE - SW SECTION 32 T. 131N. R. 29W. Twp. CLOUGH | |
| SITE TYPE PREHISTORIC | | PROBABLE CULTURAL COMPONENTS: UNKNOWN | |
| SITE DESCRIPTION / ENVIRONMENTAL SETTING SITE IS ON THE ESKOL TERRACE IN THE SUSPECTED VICINITY OF ZEBULON PIKE'S "PINE CAMP" (CA. 1805-06). SITE CONSISTS OF TWO ACCURATE LOCI. THE EASTERN LOCUS SITS ON THE EAST EDGE OF TERRACE AND CONTAINS A WIDE VARIETY OF LITHIC DEBRIS. THE WESTERN LOCUS IS SUGGESTED BY THE REMAINS OF A PC. OF DEBRIS AND A BIFACE. THE SITE AREA SUPPORTS PINE AND DECIDUOUS TREES. | | | |
| SITE CONDITION Good. The Western Locus is cut by a groomed cross-country ski trail | CURRENT LAND USE MILITARY RESERVE | SITE AREA E. LOCUS = 5000 m² W. LOCUS = 300 m² | |
| NATURE OF NEAREST WATER MISSISSIPPI RIVER | DISTANCE TO WATER 140 METERS | DIRECTION OF SITE FROM WATER WEST | |
| ELEVATION OF SITE: 1180' ASL | | ELEVATION OF NEAREST WATER: 1140' ASL | |
| NATURE, EXTENT OF INVESTIGATION: SURFACE OBSERVATION AND SHOVEL TESTING | | | |
| ARTIFACTS OBSERVED, RECOVERED: WEST LOCUS: 1 pc. QUARTZ DEBRIS + 1 QUARTZ BIFACE EAST LOCUS: A WIDE RANGE OF LITHIC DEBRIS (S-DEBR) AND POSSIBLE FCR. | | | |
| LOCAL COLLECTIONS, INFORMANTS: | | | |
| WRITTEN REFERENCES: | | | |
| COMMENTS: | | | |
| ACCESSION NOS. | PHOTO NOS. | REPOSITORY: INSTITUTE FOR MN ANTHROPOLOGY | INVESTIGATORS: TOLLESON, KRALICK |
| | | PROJECT: FT. RAPIDS SURVEY | DATE: FALL 1986 |

| MINNESOTA ARCHAEOLOGICAL SITE FORM | | | |
|---|--------------------------------------|--|---|
| COUNTY MORRISON | SITE NAME | FIELD NUMBER #80 (86-8) | STATE NUMBER 21-MN-30 |
| OWNER STATE OF MINNESOTA | | U.S.G.S. QUAD BELLE PRAIRIE NW (1954). 7.5' | |
| SITE LOCATION SITE IS ON THE WEST BANK OF THE MISSISSIPPI RIVER, ABOUT 220 METERS SOUTHEAST OF THE JUNCTION OF CUNNINGHAM AND EAST BOUNDARY ROADS, AND OPPOSITE THE SOUTH END OF PIPE ISLAND. | | LEGAL DESCRIPTION W 1/2 - SW - SE SECTION 19 T 131N R. 29W Twp: CLOUGH | |
| SITE TYPE PREHISTORIC | | PROBABLE CULTURAL COMPONENTS: UNKNOWN | |
| SITE DESCRIPTION / ENVIRONMENTAL SETTING SITE CONSISTS OF A CONCENTRATION OF PREHISTORIC MATERIALS ON THE 24th RIVER TERRACE AND LIES 602.8 METERS ABOVE THE RIVER. SITE AREA IS COVERED WITH GRASS, BRUSH, AND A MIXED PINE-DECIDUOUS FOREST. NEAR THE SOUTH END OF THE SITE IS AN 1898 MISSISSIPPI RIVER COMMISSION MARKER. | | | |
| SITE CONDITION GOOD. SOME POSSIBLE DISTURBANCE BY MILITARY ACTIVITIES. | | CURRENT LAND USE MILITARY RESERVE | SITE AREA 250 M² |
| NATURE OF NEAREST WATER MISSISSIPPI RIVER | DISTANCE TO WATER ADJACENT | DIRECTION OF SITE FROM WATER NORTHWEST | |
| ELEVATION OF SITE: 1165' ASL | | ELEVATION OF NEAREST WATER: ABOUT 1145' ASL | |
| NATURE, EXTENT OF INVESTIGATION: SHOVEL TESTING | | | |
| ARTIFACTS OBSERVED, RECOVERED: CALCINED BONE, FCR, A CUDGE BIFACE, AND LITHIC DEBRIS | | | |
| LOCAL COLLECTIONS, INFORMANTS: | | MAP SCALE: 1:24000 (RIPLEY) | |
| WRITTEN REFERENCES: | | | |
| COMMENTS: | | | |
| ACCESSION NOS. | PHOTO NOS. | REPOSITORY: INSTITUTE FOR MN ARCHAEOLOGY | INVESTIGATORS: TILLEYSON, KRALICK |
| | | PROJECT: FT. RIPLEY SURVEY | DATE: FALL 1986 |

| MINNESOTA ARCHAEOLOGICAL SITE FORM | | | |
|---|---|---|--|
| COUNTY <i>MORRISON</i> | SITE NAME | FIELD NUMBER <i>#81 (86-20)</i> | STATE NUMBER <i>21-MN-31</i> |
| OWNER <i>STATE OF MINNESOTA</i> | | U.S.G.S. QUAD <i>BELLE PRAIRIE NW (1956). 7.5'</i> | |
| SITE LOCATION <i>SITE IS ON THE WEST BANK OF THE MISSISSIPPI RIVER ON A RIVER-SIDE TERRACE ADJACENT TO THE "SECTION LINE" TRAIL AND NORTHWEST OF THE MOUTH OF "FROG LAKE CREEK."</i> | | LEGAL DESCRIPTION <i>S 1/2-SE-NE } SECTION 24 N 1/2-NE-SE } T 132N R. 30W TwpSP: <i>RAIL PRAIRIE</i></i> | |
| SITE TYPE <i>PREHISTORIC</i> | PROBABLE CULTURAL COMPONENTS: <i>UNKNOWN</i> | | |
| SITE DESCRIPTION / ENVIRONMENTAL SETTING <i>SITE CONSISTS OF A LITHIC SCATTER IN A GRASSY OPENING. ALONG THE RIVER TO THE NORTHEAST IS A MIXED-PINE-DECIDUOUS FOREST. TO THE SOUTHWEST IS A SPARSE DECIDUOUS FOREST AND THE MOUTH OF "FROG LAKE CREEK."</i> | | | |
| SITE CONDITION <i>FAIR. CONSIDERABLE DISTURBANCE FROM ROAD CONSTRUCTION AND HIGH LINE MAINTENANCE.</i> | CURRENT LAND USE <i>MILITARY RESERVE</i> | | SITE AREA <i>ABOUT 10,000 m²</i> |
| NATURE OF NEAREST WATER <i>MISSISSIPPI RIVER</i> | DISTANCE TO WATER <i>ADJACENT</i> | DIRECTION OF SITE FROM WATER <i>WEST</i> | |
| ELEVATION OF SITE: <i>1160' ASL</i> | ELEVATION OF NEAREST WATER: <i>1155' ASL</i> | | |
| NATURE, EXTENT OF INVESTIGATION: <i>SURFACE OBSERVATION AND SHOVEL TESTING</i> | | | |
| ARTIFACTS OBSERVED, RECOVERED: <i>BROAD RANGE OF LITHIC DEBRIS, SOME CALCINED BONE, AND CRUMBS OF GLASS AND SHELL-TEMPERED POTTERY.</i> | | | |
| LOCAL COLLECTIONS, INFORMANTS: <i>_____</i> | | MAP SCALE: 1:24000 (REDUCED) | |
| WRITTEN REFERENCES <i>_____</i> | | | |
| COMMENTS: | | | |
| ACCESSION NOS. | PHOTO NOS. | REPOSITORY: <i>INSTITUTE FOR MN ARCHAEOLOGY</i> PROJECT: <i>FT. KILLEY SURVEY</i> | INVESTIGATORS: <i>BIRK, TOLLESON, KRALICK</i> DATE: <i>FALL 1986</i> |

| MINNESOTA ARCHAEOLOGICAL SITE FORM | | | |
|---|--------------------------------------|---|--|
| COUNTY MORRISON | SITE NAME | FIELD NUMBER #82 (86-19) | STATE NUMBER 21-MO-32 |
| OWNER State of MINNESOTA | | U.S.G.S. QUAD BAXTER, MN (1954). 7.5' | |
| SITE LOCATION SITE IS ON THE SOUTH (OR WEST) BANK OF THE CROW WING RIVER ABOUT 1/2 MILE ABOVE ITS CONFLUENCE W/ MISS. R. SITE IS ON EITHER SIDE OF THE MOUTH OF AN UNNAMED CREEK AND BETWEEN THE CROW WING RIVER AND EAST BOUNDARY ROAD. | | LEGAL DESCRIPTION E 1/2 - NE SECTION 5 T. 132N. R. 29W. Twp. 132N. R. 29W. Twp. 132N. R. 29W. | |
| SITE TYPE PREHISTORIC (ACERAMIC) | | PROBABLE CULTURAL COMPONENTS: UNKNOWN (ARCHAIC?) | |
| SITE DESCRIPTION / ENVIRONMENTAL SETTING SITE LIES ON THE EDGE OF 25-35 FOOT TERRACE OVERLOOKING THE CROW WING RIVER AND THE DEEP VALLEY OF THE UNNAMED CREEK. NORTHERN LOCUS OF SITE EXTENDS FOR 150 METERS NORTH OF THE CREEK. SOUTHERN LOCUS EXTENDS FOR 1/4 MILE TO SOUTH. SITE AREA IS COVERED WITH A MIXED PINE-DECIDUOUS FOREST, BRUSH + RAINSON IVY. | | | |
| SITE CONDITION Good. Some Damage By Road Construction. | CURRENT LAND USE MILITARY RESERVE | | SITE AREA N. LOCUS - 3,000 M ² S. LOCUS - 20,000 M ² |
| NATURE OF NEAREST WATER CROW WING RIVER | DISTANCE TO WATER ADJACENT | DIRECTION OF SITE FROM WATER WEST | |
| ELEVATION OF SITE: 1180' ASL | | ELEVATION OF NEAREST WATER: 1145' ASL | |
| NATURE, EXTENT OF INVESTIGATION: SURFACE OBSERVATION AND SHovel TESTING | | | |
| ARTIFACTS OBSERVED, RECOVERED: NORTHERN LOCUS - OBSIDIAN, HAMMISTONE, FLINT SOUTHERN LOCUS - BASALT BIFACE, + REMAINS OF OBSIDIAN | | | |
| LOCAL COLLECTIONS, INFORMANTS: | |  | |
| WRITTEN REFERENCES | | | |
| COMMENTS: | | | |
| ACCESSION NOS. | PHOTO NOS. | REPOSITORY: INSTITUTE FOR MN ARCHAEOLOGY PROJECT: FT. RIPLEY SURVEY | INVESTIGATORS: KRALICK, TOLLESON, BIRK DATE: FALL 1986 |

Appendix E. Sample Unit Surveys: Estimated Acreage and Locations.

| Sample Unit | Acres Surveyed by Landform Strata | | | | Total Acres Surveyed | Location |
|-------------|-----------------------------------|----|-----|-----|----------------------|--|
| | 1 | 2 | 3 | 4 | | |
| 1 | | | 45 | | 45 | Sec 1 T130N-R30W |
| 2 | | | | 55 | 55 | Sec 32 T131N-R30W |
| 3 | | | 140 | 20 | 160 | Sec 22 T131N-R30W |
| 4 | | 20 | | 2 | 22 | Sec 15 T131N-R30W |
| 5 | | 25 | | | 25 | Sec 14 T131N-R30W |
| 6 | | 10 | 20 | | 30 | Secs 11 & 14 T131N-R30W |
| 7 | | | | 10 | 10 | Sec 6 T131N-R29W |
| 8 | 25 | | | | 25 | Secs 31 & 32 T131N-R32W |
| 9 | | | 10 | | 10 | Sec 36 T131N-R30W |
| 10 | | 5 | 80 | | 85 | Secs 4 & 9 T131N-R30W |
| 11 | 10 | 3 | 7 | 10 | 30 | Secs 1, 10 & 11 T131N-R30W |
| 12 | | | 70 | | 70 | Sec 16 T131N-R30W |
| 13 | 40 | | | | 40 | Secs 1 & 12 T131N-R30W |
| 14 | | | 3 | 85 | 88 | Sec 13 T131N-R30W |
| 15 | | | | 5 | 5 | Secs 14 & 23 T131N-R30W |
| 16 | | | | 40 | 40 | Sec 19 T131N-R29W |
| 17 | | | | 45 | 45 | Sec 31 T132N-R29W |
| 18 | | | | 20 | 20 | Sec 30 T131N-R29W |
| 19 | | | | 30 | 30 | Sec 6 T131N-R29W |
| 20 | | | | 10 | 10 | Sec 30 T131N-R29W |
| 21 | | 12 | 8 | | 20 | Sec 26 T132N-R30W |
| 22 | 25 | | | | 25 | Sec 14 T132N-R30W |
| 23 | 30 | | | | 30 | Sec 22 T132N-R30W |
| 24 | 60 | | | | 60 | Sec 12 T132N-R30W |
| 25 | 5 | | | | 5 | Secs 11 & 13 T132N-R30W |
| 26 | | | 8 | | 8 | Sec 33 T132N-R30W |
| 27 | | | 110 | | 110 | Secs 4 & 5 T131N-R30W |
| 28 | | | | 40 | 40 | Sec 19 T132N-R29W and Sec 24 T132N-R30W |
| 29 | 20 | | | | 20 | Sec 27 T132N-R30W |
| 30 | | | 85 | | 85 | Secs 27 & 34 T132N-R30W |
| 31 | | 12 | | | 12 | Sec 36 T132N-R30W |
| 32 | | | | 65 | 65 | Sec 8 T132N-R29W |
| 33 | | | | 5 | 5 | Sec 22 T131N-R30W |
| 34 | 22 | | 11 | | 33 | Sec 33 T133N-R30W |
| 35 | 40 | | | | 40 | Sec 23 T133N-R30W |
| 36 | | | | 70 | 70 | Sec 5 T132N-R29W |
| 37 | 2 | | | | 2 | Sec 33 T133N-R30W |
| 38 | | | 7 | | 7 | Sec 27 T133N-R30W |
| 39 | | | | 40 | 40 | Sec 24 T133N-R30W |
| 40 | | 10 | | | 10 | Sec 7 T132N-R29W |
| TOTALS: | 297 | 97 | 604 | 352 | 1532 | |

**Appendix F. Camp Ripley USGS Maps Showing Landform
Strata, Sample Units, and Sites.**

| Figure | Page |
|---|-------------|
| F-1 Selected Sites, Landform Strata, and Sample Units South of the Crow Wing River (adapted from Baxter, MN and Pillager, MN USGS Quads, 1954. 7.5' Series. Contour interval equals 10 feet)..... | 134 |
| F-2 Selected Sites, Landform Strata, and Sample Units in the Central Reserve Area (adapted from Belle Prairie NW, MN and Fort Ripley, MN USGS Quads, 1956. 7.5' Series. Contour interval equals 20 feet)..... | 135 |
| F-3 Selected Sites, Landform Strata, and Sample Units in the Camp Ripley Cantonment Area (adapted from Belle Prairie, MN and Randall East, MN USGS Quads, 1956. 7.5' Series. Contour interval equals 20 feet)..... | 136 |

KEY TO USGS MAPS:

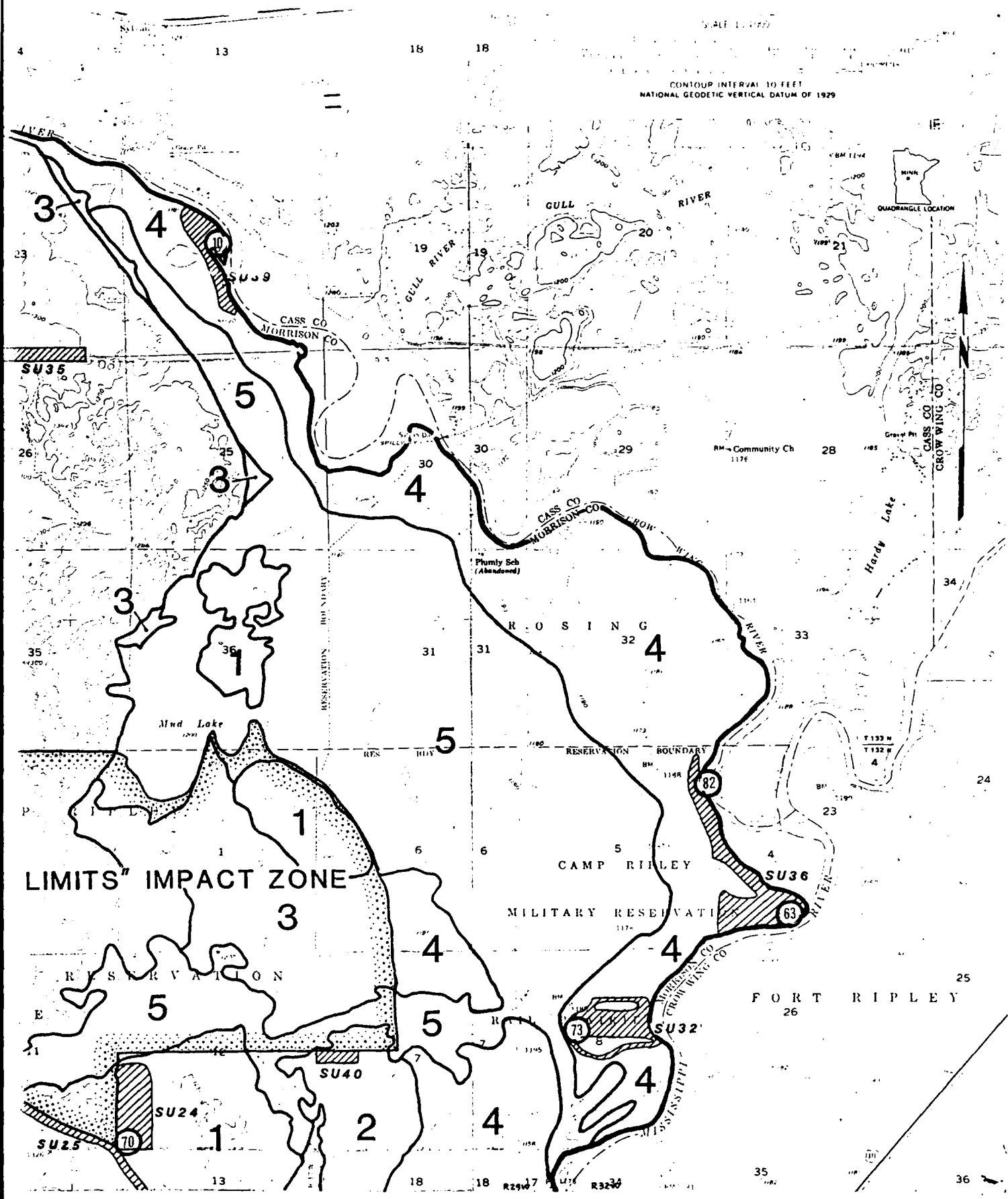
Circled Numbers = Sites

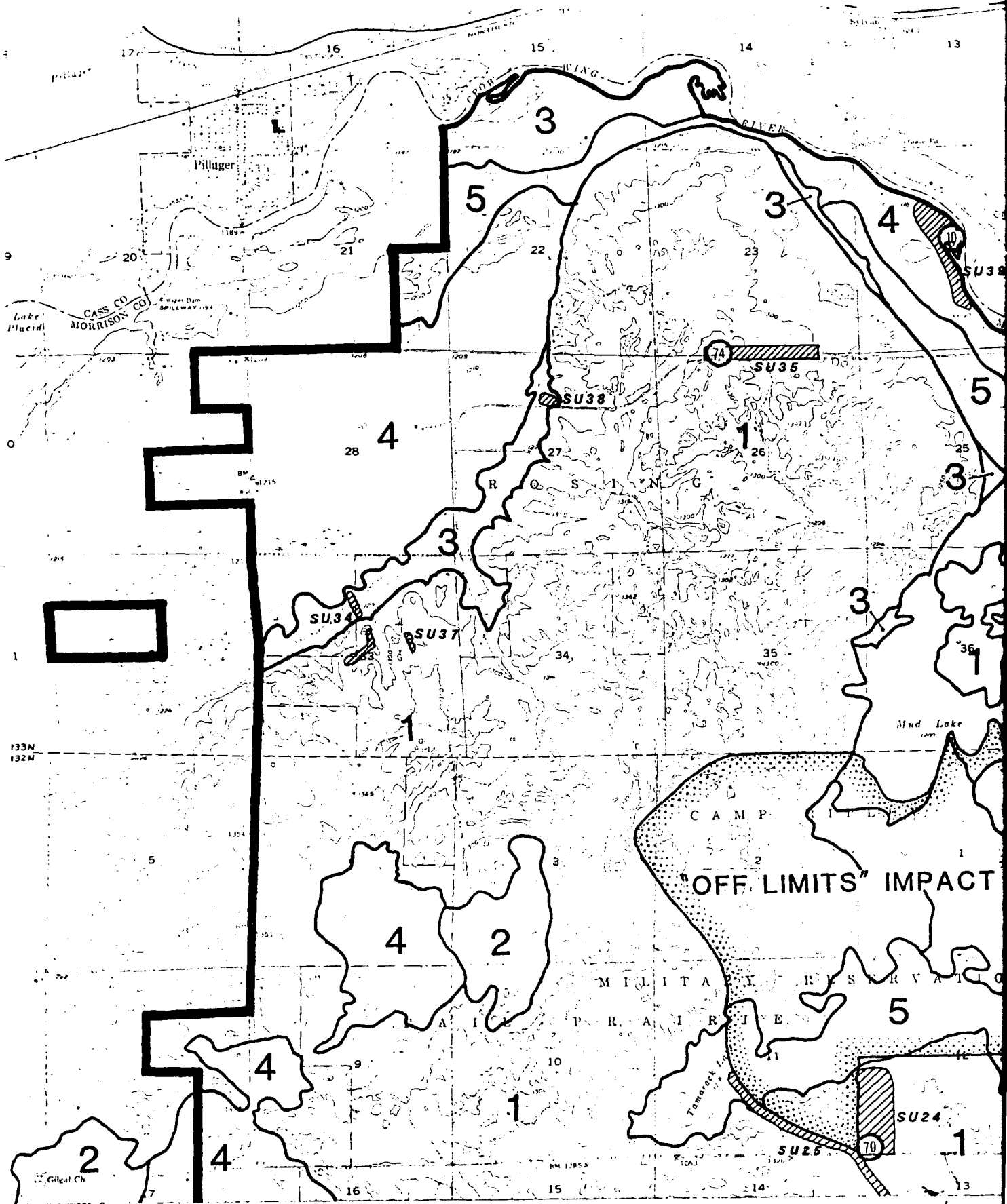
"SU" Numbers = Sample Units

Bold Numbers = Landform Strata

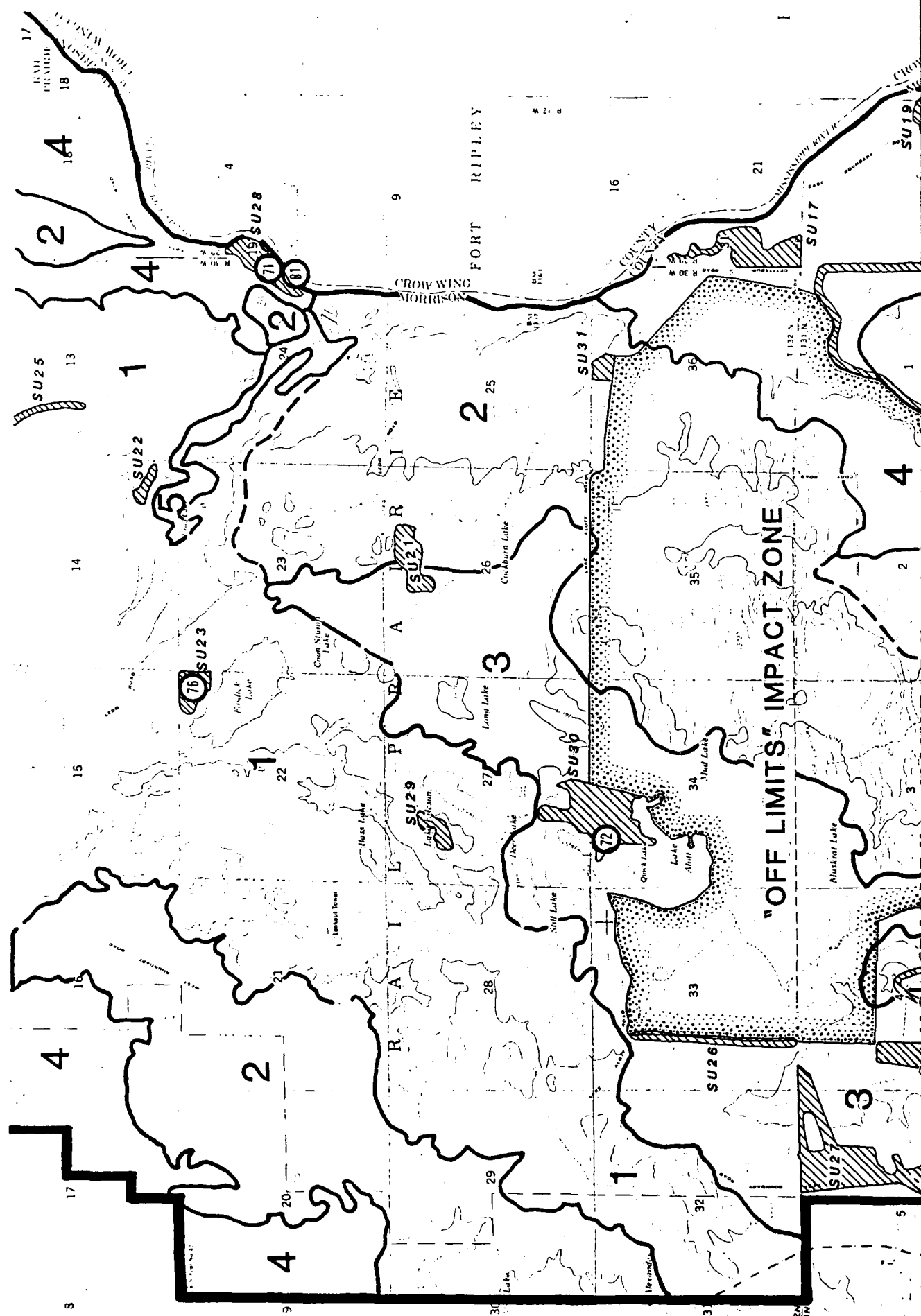
Stratum 1 - Rugged
Stratum 2 - Moderate
Stratum 3 - Gentle to Rolling
Stratum 4 - Level
Stratum 5 - Marshy

Figure F-1.

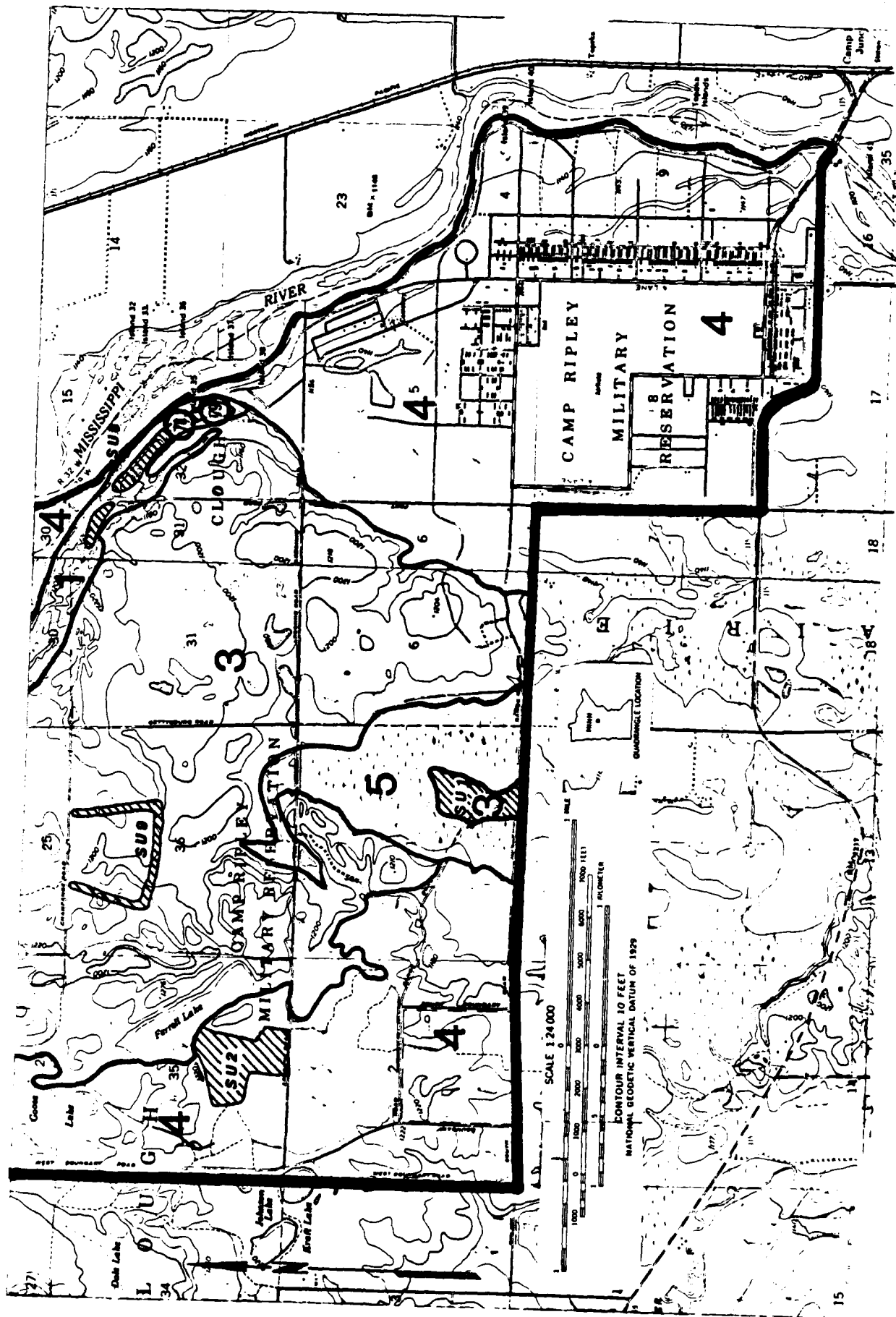




-2042-



"OFF LIMITS" IMPACT ZONE



Appendix G. Artifacts Recovered During the Camp Ripley Phase I Sampling Survey. Underlined items are illustrated in Figure 19.

| Sample Unit | Provenience | Method of Recovery | Artifacts |
|-------------|--------------------------|--------------------|--|
| 3 | Find Spot 1 | S Coll | 1-pc. white quartz debitage |
| | | S Coll | 1-pc. possible white quartz debitage |
| 3 | Find Spot 2 | S Coll | 1-pc. white quartz debitage |
| 8 | Site #78 | ST 42 | 0-5cm 1-pc. white quartz debitage 5-12cm 6-pc. white quartz debitage 12-20cm 2-pc. white quartz debitage 20-25cm 1-pc. possible chert debitage |
| | | S Coll | 2-pc. possible fire-cracked rock |
| 8 | Site #79 (West Locus) | S Coll | <u>1-possible white quartz biface (Fig. 19-A)</u> |
| | | ST 101 | 5-10cm 1-pc. white quartz debitage |
| 8 | Site #79 (East Locus) | ST 71 | 0-5cm 1-pc. white quartz debitage 5-15cm 11-pc. white quartz debitage 1-pc. tongue river silica debitage |
| | | S Coll | 1-pc. white quartz debitage |
| | | ST 73 | 5-10cm 4-pc. white quartz debitage 1-pc. chert debitage 10-20cm 1-pc. chert debitage 1-pc. agate debitage 20-30cm 2-pc. white quartz debitage 1-tongue river silica flake 1-yellow jasper flake 30-40cm 1-pc. white quartz debitage 1-pc. chert debitage |
| | | ST 75 | 10-30cm 1-pc. white quartz debitage 2-gray chert flakes 2-pc. black quartz debitage 30-50cm 1-pc. possible white quartz debitage |
| | | ST 76 | 0-10cm 1-pc. white quartz debitage 10-20cm 1-tongue river silica flake 1-red jasper flake |
| | | ST 79 | 25-35cm 1-tongue river silica flake |
| | | ST 80 | 15-25cm 1-pc. tongue river silica debitage |

| | | | |
|----|--------------------------|--------|--|
| 8 | Site #79 (East Locus) | ST 81 | 5-12cm 1-tongue river silica flake 12-24cm 1-white chert flake 24-35cm 1-pc. white quartz debitage 1-tongue river silica flake 35-45cm 1-pc. white quartz debitage |
| | | ST 82 | 30-40cm 1-pc. white quartz debitage |
| | | ST 83 | 0-7cm 1-pc. unidentified debitage |
| | | ST 87 | 5-15cm 1-pc. white quartz debitage 15-25cm 1-pc. gray chert debitage 25-35cm 1-brown chert debitage |
| | | ST 89 | 25-35cm 1-gray chert flake |
| | | ST 90 | 10-35cm 2-pc. white quartz debitage 1-tongue river silica flake 1-possible fire-cracked rock |
| | | ST 91 | 10-30cm 1-possible fire-cracked rock |
| | | ST 96 | 5-10cm 1-pc. tongue river silica debitage 10-15cm 1-tongue river silica flake |
| | | ST 99 | 0-10cm 1-pc. white quartz debitage 20-30cm 1-pc. fine-grained pink quartzite |
| | | ST 106 | 5-15cm 1-pc. tongue river silica debitage 15-25cm 1-agate flake |
| | | ST 109 | 12-35cm 3-pc. white quartz debitage |
| | Find Spot 3 | ST 113 | 1-red jasper flake |
| | Find Spot 4 | S Coll | <u>1-broken quartz projectile point (Fig. 19-B)</u> |
| | | ST "A" | 0-12cm 1-pc. gray chert debitage |
| | Find Spot 5 | ST 47 | 5-15cm 1-gray chert flake |
| 14 | Find Spot 6 | S Coll | 1-gray chert flake |
| 16 | Site #75 | ST 6 | 0-10cm 1-pc. white quartz debitage 10-30cm 1-pc. white quartz debitage 30-50cm 1-basalt flake |
| | | | |
| | | | |
| | | ST 7 | 5-15cm 2-pc. tongue river silica debitage 1-knife river flint flake |
| | | | 26-35cm 6-tongue river silica flakes 35-45cm 6-tongue river silica flakes |

| | | | |
|----|----------|--------|--|
| 16 | Site #75 | ST 7 | 35-45cm 3-pc. tongue river silica debitage 45-55cm 1-tongue river silica flake |
| | | ST 8 | 0-10cm 1-white quartz flake 10-25cm 1-tongue river decortication flake |
| | | ST 9 | 0-5cm 1-pc. mirror glass 5-15cm 5-pc. mirror glass 25-35cm 1-tongue river silica flake |
| | | ST 10 | 0-10cm 1-pc. white quartz debitage 10-25cm 2-white quartz flakes 25-40cm 1-white quartz flake 1-unidentified decortication flake |
| | | ST 11 | 5-15cm 1-pc. unidentified debitage 15-25cm 1-white quartz flake 1-tongue river silica flake 1-pc. tongue river debitage 40-50cm 1-white quartz flake |
| | | ST 12 | 10-25cm 1-gray quartzite flake |
| | | ST 14 | 25-40cm 1-unidentified bone fragment |
| | | ST 22 | 10-20cm 1-jasperite flake |
| | | ST 23A | 20cm 1-cast iron stove part (left <u>in situ</u>) |
| | | ST 24 | 10-20cm 1-pc. white quartz debitage 2-pc. basalt debitage 20-40cm 1-red jasper flake |
| | | ST 25 | 5-15cm 2-pc. white quartz debitage |
| | | ST 26 | 15-30cm 2-pc. white quartz debitage |
| | | S Coll | 1-white quartz flake 1-white clay smoking pipe stem fragment |
| 16 | Site #80 | ST 50 | 30-40cm 1-pc. white quartz debitage |
| | | ST 60 | 30-45cm 1-crude tongue river silica biface |
| | | ST 60B | 20-30cm 1-pc. white quartz debitage |
| | | ST 60D | 0-20cm 1-pc. tongue river silica debitage 1-pc. white quartz debitage 1-fire-cracked rock calcined bone fragments |

| | | | |
|----|----------|--------|--|
| 16 | Site #80 | ST 60E | 0-20cm 1-pc. white quartz debitage |
| | | ST 60E | 30-40cm 1-pc. gray quartzite debitage |
| 23 | Site #76 | S Coll | #1: 1-small pc. broken white chert biface |
| | | S Coll | #2: 1-white quartz flake |
| | | S Coll | #3: 1-white quartz flake |
| | | S Coll | #4: 1-shell-tempered ceramic crumb |
| | | ST 3 | 15-25cm 1-knife river flint flake |
| | | ST 4 | 15-23cm 1-agate flake |
| 28 | Site #81 | S Coll | Road: 38-pc. white quartz debitage 1-white quartz chert flake 1-pc. unidentified debitage |
| | | S Coll | Cut: 1-white quartz flake 4-pc. white quartz debitage 1-cream-orange colored chert flake |
| | | S Coll | <u>1-quartz projectile point fragment (Fig. 19-C)</u> |
| | | ST 103 | 0-10cm 1-pc. white quartz debitage 10-25cm 2-pc. white quartz debitage |
| | | ST 104 | 0-10cm 1-knife river flint flake |
| | | ST 106 | 0-5cm 1-tongue river silica flake 1-white chert flake 1-pink quartzite flake 2-grit-tempered ceramic crumbs 5-10cm 1-pc. white quartz debitage 10-20cm 1-tongue river silica flake 1-grit-tempered cord-marked ceramic crumb |
| | | ST 108 | 30-40cm 1-pc. white quartz debitage 1-white quartzite flake |
| | | ST 114 | 0-10cm 2-grit tempered ceramic crumbs 10-15cm 1-white quartz flake (broken) 1-raw bone fragment calcined bone fragments |
| | | ST 118 | 10-20cm 2-chert flakes 20-30cm 1-pc. white quartz debitage 30-40cm 1-white quartz flake |
| | | ST 120 | 10-20cm 1-pc. calcined bone 40-50cm 1-pc. clear quartz debitage |

| | | | | |
|----|----------|--------|---------|--|
| 28 | Site #81 | ST 121 | 10-20cm | 2-pc. white quartz debitage 1-exfoliated shell tempered ceramic crumb |
| | | ST 124 | 0-10cm | 1-tongue river flake |
| | | | 10-20cm | 1-oolitic chert flake 1-flake of unidentified material |
| | | ST 126 | 0-10cm | 1-pc. white quartz debitage |
| | | | 10-20cm | 2-tongue river silica debitage 1-calcined bone fragment |
| | | | 20-30cm | 1-pc. white quartz debitage |
| | | | 40-50cm | 1-pc. white quartz debitage |
| | | | 50-60cm | 1-pc. white quartz debitage |
| | | ST 127 | 10-20cm | 1-pc. white quartz debitage 1-white quartz flake |
| | | ST 128 | 10-20cm | 1-pc. white quartz debitage |
| | | ST 130 | 0-10cm | 1-pc. white quartz debitage |
| | | | 30-40cm | 2-pc. tongue river silica debitage |
| | | ST 132 | 0-10cm | 1-pc. white quartz debitage |
| | | ST 134 | 10-20cm | 2-calcined bone fragments |
| | | ST 136 | 10-20cm | 1-tongue river silica flake |
| | | ST 138 | 10-15cm | <u>1-agate end scraper fragment (Fig. 19-D)</u> 1-raw bone fragment |
| | | ST 142 | 20-30cm | 1-pc. basalt debitage |
| | | | 30-40cm | 1-basalt flake |
| 33 | Site #77 | S Coll | | 2-pc. white quartz debitage 1-red agate flake |
| | | ST 1 | 0-10cm | 2-pc. clear bottle glass |
| | | | 10-20cm | 4-pc. clear bottle glass 1-pc. window glass 2-round wire nails |
| | | | 20-30cm | 2-round wire nails |
| | | ST 2 | 0-10cm | 2-pc. clear bottle glass 3-round wire nails |
| | | | 10-20cm | 2-pc. window glass 1-pc. unidentified metal 5-pcs. asphalt shingle |
| | | ST 3 | 0-10cm | 1-knife river flake 1-pc. window glass 8-round wire nails |

| | | | |
|----|---------------------------|-------|--|
| 33 | Site #77 | ST 3 | 10-20cm 2-round wire nails 20-30cm 1-round wire nail |
| | | ST 4 | 0-10cm 1-round wire nail 10-20cm 1-pc. clear bottle glass 1-round wire nail |
| | | ST 5 | 0-10cm 3-pc. clear bottle glass 1-pc. clear window glass 2-round wire nails 1-metal inner-tube valve cap 10-20cm 8-pc. clear bottle glass 3-round wire nails 1-unidentified tin fragment 20-30cm <u>1-Knife River Flint proj. pt. (Fig. 19-E)</u> 30-40cm 1-pc. clear bottle glass |
| | | ST 6 | 0-10cm 1-pc. melted blue glass 2-pc. stoneware 10-20cm 1-pc. clear bottle glass 1-pc. whiteware tea cup 3-round wire nails |
| | | ST 15 | 10-20cm <u>1-oolitic chert biface fragment (Fig. 19-F)</u> |
| | | ST 31 | 15-30cm 1-pc. white quartz debitage |
| | | ST 32 | 20-25cm 1-tongue river silica debitage 25-35cm 1-pc. white quartz debitage |
| | | ST 40 | 0-10cm 1-red chert debitage (heat-fractured?) |
| | | ST 3 | 0-10cm 1-pc. white quartz debitage |
| | | ST 17 | 10-25cm 1-agate flake |
| 35 | Site #74 | ST 32 | 0-15cm 1-gold plates, cube-shaped trinket |
| 36 | Site #82 (North Locus) | ST 68 | 0-9cm 3-pc. oolitic chert debitage 1-tan chert flake 1-fire-cracked rock |
| | | ST 69 | 10-15cm 1-fire-cracked rock (discard) |
| | | ST 70 | 0-11cm 1-pc. white quartz debitage |
| | | ST 71 | 0-11cm 3-tongue river flakes |
| | | ST 73 | 0-10cm 1-pc. white quartz debitage 10-20cm 1-pc. white quartz debitage |

| | | | | |
|----|---------------------------|--------|---------|-------------------------------------|
| 36 | Site #82 (North Locus) | ST 75 | 0-10cm | 1-pc. white quartz debitage |
| | | | 10-15cm | 4-pc. white quartz debitage |
| | | | 15-25cm | 1-pc. white quartz debitage |
| | | | | 1-pc. chert debitage |
| | | ST 76 | 20-30cm | 1-pc. white quartz debitage |
| | | ST 78 | 10-20cm | 1-pc. white quartz debitage |
| | | ST 79 | 10-20cm | 1-pc. white quartz debitage |
| | | ST 81 | 30-40cm | 1-pc. white quartz debitage |
| | | ST 82 | 20-30cm | 1-hammerstone |
| | | | | 1-poss. fire-cracked rock (discard) |
| 36 | Site #82 (South Locus) | | 40-50cm | 1-pc. white quartz debitage |
| | | ST 84 | 17cm | fire-cracked rock |
| | | ST 85 | 10-20cm | 1-pc. orangish quartz debitage |
| | | S Coll | | 3-pc. white quartz debitage |
| | | | | 1-pink quartz flake |
| | | ST 3 | 30-50cm | 1-pc. white quartz debitage |
| | | ST 4 | 0-10cm | 49-pc. white quartz debitage |
| | | | | 1-white quartz core |
| | | | | 1-tongue river silica flake |
| | | | 10-20cm | 15-pc. white quartz debitage |
| | | | 20-30cm | 4-pc. white quartz debitage |
| | | | | 1-chert core |
| | | ST 6 | 10-20cm | 1-chert flake |
| | | ST 7 | 20-30cm | 1-jasper core |
| | | ST 10 | 10-20cm | 1-pc. white quartz debitage |
| | | ST 14 | 10-20cm | 1-pc. chert debitage |
| | | ST 17 | 10-20cm | 1-white quartz flake |
| | | ST 18 | 20-30cm | 1-pc. white quartz debitage |
| | | ST 22 | 10-25cm | 1-pc. white quartz debitage |
| | | ST 25 | 5-10cm | 1-red jasper debitage |
| | | ST 29 | 0-10cm | 1-chert debitage |

| | | | | |
|----|---------------------------|--------|---------|---|
| 36 | Site #82 (South Locus) | ST 44 | 10-20cm | 2-pc. white quartz debitage |
| | | ST 46 | 5-10cm | 1-agate flake |
| | | ST 47 | 10-20cm | 1-white chert flake |
| | | ST 50 | 0-10cm | 1-pc. white quartz debitage |
| | | ST 54 | 10-15cm | 3-pc. white quartz debitage |
| | | | 15-25cm | 1-pc. white quartz debitage |
| | | ST 62 | 20-30cm | 1-pc. white quartz debitage |
| | | ST 65 | 20-30cm | 1-pc. white quartz debitage |
| | | ST 90 | 20-30cm | 1-pc. white quartz debitage |
| | | ST 95 | 20-30cm | 1-pc. white quartz debitage |
| | | | | 1-basalt flake |
| | | | 30-40cm | 1-pc. red jasper debitage |
| | | ST 101 | 15-25cm | <u>1-red quartz biface fragment (Fig. 19-6)</u> |
| | | ST 110 | 0-10cm | 1-pc. white quartz debitage |
| | | | 10-30cm | 1-pc. white quartz debitage |
| | | | | <u>1-green chert biface fragment (Fig. 19-11)</u> |
| | | ST 113 | 0-5cm | 1-pc. white quartz debitage |
| | | ST 116 | 0-12cm | 1-basalt flake |
| | | ST 121 | 20-30cm | 1-oolitic chert debitage |
| 36 | Site #63 | S Coll | | <u>1-hand-wrought square nail (Fig. 19-1)</u> |

Appendix H. Draft Report Review Comments

St. Paul District Comments on a Draft Report Entitled:

Sites and Landforms: A Phase I Archaeological Sampling Survey
at Camp Ripley, Morrison County, Minnesota

1. Overall, the report is very good in describing the methods and the results of the survey. The report could be improved by thoroughly editing the document for typographical errors. For example:

p. 1, par. 4, - "21 prehistoric or historic sites" should be "21 prehistoric and historic sites."

p. 1 ff. - "an Historic" is incorrect and should read "a Historic"

p. 10, last par. - "1960's" should be "1860's"

p. 24, par. 4 - "Stanchfield 's" should be "Stanchfield's"

p. 43 - in the description section "the basin area lies at <at> a general level..."

p. 94, par. 3 - change "live-sustaining" to "life-sustaining"

p. 98, last par. - "approachs"

2. Figure 15 on p. 57 references Site #9, the Mrs. Albert Schultz Grave. This site is not discussed in the text of the report. If it has been given a site number, it should be described in the text.

3. A number of the figures in the text are printed so light that it is difficult to determine the extent of the site based on the shading that was used (see fig. 20, p. 68 and fig. 24, p. 78). Figure 23 on page 76 used a solid line to border the shaded area. This makes it much easier to see the site boundaries.

4. Please delete the last two sentences in paragraph 3. While we sympathize with and apologize for the erratic Corps' payments on this contract, we do not believe that the survey report is an appropriate place to discuss this. Since future survey work at Camp Ripley will be done under contract with the National Guard Bureau, this note of caution serves no useful purpose.

5. The figures in appendix F are extremely difficult to read. The sample unit and site symbols are not differentiated enough from the other map symbols. It is difficult, and sometimes impossible, to locate the sample units and sites in these figures.

Author's response: The 1960's date is correct. Site #9 is fully discussed elsewhere (Birk 1986:53-54). The figures in the first draft did not reproduce well because they were made from photocopies of the originals.

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